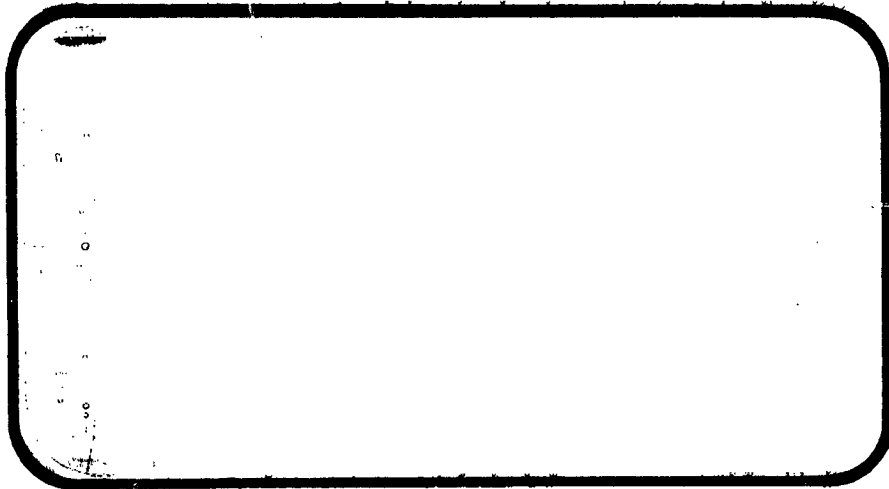




# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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NSA-CP-134071) RESULTS OF WIND TUNNEL  
TESTS AT MACH 5 ON THE .004 SCALE MODEL  
OF A CONFIGURATION SPACE SHUTTLE TO  
DETERMINE PROXIMITY EFFECTS AND (Chrysler  
Corp.) 232 p HC \$14.75

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**SPACE SHUTTLE**

**AEROTHERMODYNAMIC DATA REPORT**

**JOHNSON SPACE CENTER  
HOUSTON, TEXAS**

**DATA MANAGEMENT** services

SPACE DIVISION



**CHRYSLER  
CORPORATION**

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RESULTS OF WIND TUNNEL TESTS AT MACH 5  
ON THE .004 SCALE MODEL 2A CONFIGURATION  
SPACE SHUTTLE TO DETERMINE PROXIMITY EFFECTS  
AND ORBITER CONTROL EFFECTIVENESS DURING  
ORBITER/EXTERNAL TANK ABORT SEPARATION  
(IA6)

By

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Prepared under NASA Contract Number NAS9-13247

by

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New Orleans, La. 70189

for

Engineering Analysis Division

Johnson Space Center  
National Aeronautics and Space Administration  
Houston, Texas

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Test Number: MSFC 571  
NASA Series No.: IA6  
Date: April 30 - May 2, 1973

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ABSTRACT

This report presents results from tests in the NASA/MSFC Trisonic Wind Tunnel on 0.004-Scale Orbiter and External Tank Force Models in Close Proximity (RTLS Abort Separation Conditions).

The primary test objectives were to obtain data concerning proximity effects on the aerodynamic forces and moments experienced by Vehicle 2A Configuration Shuttle Orbiter and External Tank during an abort separation (Return to Launch Site) at a Mach number of 5. Additionally, data on orbiter control effectiveness during such an abort was obtained. Proximity effects were investigated for relative angles of incidence from minus 5 deg to plus 10 degrees of the orbiter FRL with respect to the external tank centerline over a range of vertical (Z - axis) and longitudinal (X - axis) displacements from the mated position to 2.5 tank diameters below and 3 tank diameters aft of the mated position.

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$\Delta\alpha = 0^\circ$		A	6-10
$\Delta\alpha = 5^\circ$		A	11-15
$\Delta\alpha = 10^\circ$		A	16-20
Basic Separation Data - External Tank in Presence of Orbiter			
$\Delta\alpha = -5^\circ$		A	21-25
$\Delta\alpha = 0^\circ$		A	26-30
$\Delta\alpha = 5^\circ$		A	31-35
$\Delta\alpha = 10^\circ$		A	36-40
Elevon Effectiveness - Orbiter in Presence of External Tank			
$\Delta\alpha = 0^\circ, \delta e = 10^\circ$		B	41-45
$\Delta\alpha = 5^\circ, \delta e = 10^\circ$		B	46-50
$\Delta\alpha = 0^\circ, \delta e = 20^\circ$		B	51-55
$\Delta\alpha = 5^\circ, \delta e = 20^\circ$		B	56-60
$\Delta\alpha = 0^\circ, \delta e = 40^\circ$		B	61-65
$\Delta\alpha = 5^\circ, \delta e = 40^\circ$		B	66-70
Elevon Effectiveness - External Tank in Presence of Orbiter			
$\Delta\alpha = 0^\circ, \delta e = 10^\circ$		B	71-75
$\Delta\alpha = 5^\circ, \delta e = 10^\circ$		B	76-80
$\Delta\alpha = 0^\circ, \delta e = 20^\circ$		B	81-85
$\Delta\alpha = 5^\circ, \delta e = 20^\circ$		B	86-90
$\Delta\alpha = 0^\circ, \delta e = 40^\circ$		B	91-95
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# INDEX OF DATA FIGURES (Concluded)

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Basic Data - Integrated Vehicle - Elevon Effectiveness	C	101-102
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Basic Data - Integrated Vehicle - Aileron Effectiveness in Yaw	E	110-115
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## SCHEDULES OF COEFFICIENTS PLOTTED:

- A) CN, CLM, CAF vs. DELTAX
- B) DLTCN, DLTCLM, DLTCAF vs. DELTAX
- C) CN, CLM, CAF vs. ALPHA
- D) CY, CYN, CBL vs. ALPHA
- E) CN, CLM, CAF, CY, CYN, CBL vs. BETA

# NOMENCLATURE (General)

<u>SYMBOL</u>	<u>SADSCAC SYMBOL</u>	<u>DEFINITION</u>
$a$		speed of sound; m/sec, ft/sec
$C_p$	CP	pressure coefficient; $(P_1 - P_\infty)/q$
$M$	MACH	Mach number; $V/a$
$p$		pressure; N/m <sup>2</sup> , psf
$q$	Q(NSM) Q(PSF)	dynamic pressure; $1/2\rho V^2$ , N/m <sup>2</sup> , psf
RN/L	RN/L	unit Reynolds number; per m, per ft
$V$		velocity; m/sec, ft/sec
$\alpha$	ALPHA	angle of attack, degrees
$\beta$	BETA	angle of sideslip, degrees
$\psi$	PSI	angle of yaw, degrees
$\phi$	PHI	angle of roll, degrees
$\rho$		mass density; kg/m <sup>3</sup> , slugs/ft <sup>3</sup>

## Reference & C.G. Definitions

$A_b$		base area; m <sup>2</sup> , ft <sup>2</sup>
$b$	BREF	wing span or reference span; m, ft
c.g.		center of gravity
$\frac{l_{REF}}{c}$	LREF	reference length or wing mean aerodynamic chord; m, ft
$S$	SREF	wing area or reference area; m <sup>2</sup> , ft <sup>2</sup>
	MRP	moment reference point
	XMRP	moment reference point on X axis
	YMRP	moment reference point on Y axis
	ZMRP	moment reference point on Z axis

## SUBSCRIPTS

$b$	base
$l$	local
$s$	static conditions
$t$	total conditions
$\infty$	free stream

# NOTATION (Continued)

## Body-Axis System

SYMBOL	SYMBOL	DEFINITION
$C_H$	CH	normal force coefficient; $\frac{\text{normal force}}{qS}$
$C_A$	CA	axial force coefficient; $\frac{\text{axial force}}{qS}$
$C_Y$	CY	side force coefficient; $\frac{\text{side force}}{qS}$
$C_{A_b}$	CAB	base force coefficient; $\frac{\text{base force}}{qS}$ $-A_b(p_b - p_\infty)/qS$
$C_{A_F}$	CAF	forebody axial force coefficient; $C_A - C_{A_b}$
$C_m$	CM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS \bar{L}_{REF}}$
$C_n$	CYN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qS b}$
$C_l$	CL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qS b}$

## Stability-Axis System

$C_L$	CL	lift coefficient; $\frac{\text{lift}}{qS}$
$C_D$	CD	drag coefficient; $\frac{\text{drag}}{qS}$
$C_{D_b}$	CDB	base-drag coefficient; $\frac{\text{base drag}}{qS}$
$C_{D_F}$	CDF	forebody drag coefficient; $C_D - C_{D_b}$
$C_Y$	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
$C_m$	CM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS \bar{L}_{REF}}$
$C_n$	CLN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qS b}$
$C_l$	CL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qS b}$
$L/D$	L/D	lift-to-drag ratio; $C_L/C_D$
$L/D_F$	L/DF	lift to forebody drag ratio; $C_L/C_{D_F}$

# NOMENCLATURE (Continued)

## ADDITIONAL NOMENCLATURE

SYMBOL	SADSAC SYMBOL	DEFINITION
$C_{ABO}$	CABO	orbiter base axial force coefficient.
$C_{ABT}$	CABT	external tank base axial force coefficient.
$C_{ABS}$	CABS	SRM base axial force coefficient.
$\Delta\alpha$	DELTA $\alpha$	incremental change in angle of attack, alpha, degrees.
$\Delta\beta$	DELTA $\beta$	incremental change in sideslip angle, beta, degrees.
$\Delta X$	DELTA $X$	axial separation distance from mated position.
$\Delta Y$	DELTA $Y$	horizontal separation distance from mated position.
$\Delta Z$	DELTA $Z$	vertical separation distance from mated position.
$\Delta C_{Af}$	DLTCAF	incremental forebody axial force coefficient.
$\Delta C_m$	DLTCLM	incremental pitching moment coefficient.
$\Delta C_N$	DLTCN	incremental normal force coefficient.
$\delta_a$	AILRON	aileron, total aileron deflection angle, degrees, (left aileron-right aileron)/2.
$\delta_e$	ELEVON	elevon, surface deflection angle, positive deflection, trailing edge down; degrees.
$\delta_r$	RUDDER	rudder, surface deflection angle, positive deflection, trailing edge to the left; degrees.
$\delta_{RF}$	RUDFLR	rudder flare, split rudder deflection angle, left split rudder trailing edge left and right split rudder trailing edge right, $\delta_{RF} = (\delta_{RL} + \delta_{RK})/2$

## CONFIGURATIONS INVESTIGATED

The Orbiter and External Tank model geometry (0.004 scale) is shown in figures 2 and 3. The Orbiter model was constructed using aluminum for the wing and stainless steel for the body, elevons, fins and rudder flares. Control surface deflections are obtained by means of detachable surfaces, set to the desired angles. The model has provisions for elevons and rudder/rudder flare deflections of the following combinations:

$\delta_e = 0^\circ, +10^\circ, -20^\circ, -30^\circ, -40^\circ$  (elevon)

$\delta_r = 0^\circ, -10^\circ, -20^\circ$  (rudder)

$\delta_{RF} = 0^\circ, 10^\circ, 40^\circ$  (rudder flare)

The External Tank model is constructed of stainless steel in accordance with NASA MSFC drawings 80M42609 and 80M32592. When the models were independently sting-mounted on the IWF Dual Sting hardware, MSFC balance number 231 was mounted internally in the Orbiter with MSFC balance number 232 mounted internally in the External Tank.

Standoffs were provided for attachment of the Orbiter to the External Tank in the mated position such that data could be taken, including balance number 232, with a single sting through the External Tank supporting the combination.

While the orbiter model configuration is designated 0-13, the various components have their own series identifications as follows:

<u>Component</u>	<u>Number</u>
Body	B10
Canopy	C5
Manipulator Housing	D7
Elevon	E18
Body Flap	F4
OMS Pod	M3
Rudder	R5
Vertical	V5
Wing	W87

The external tank, Tg, is not broken into subassemblies. The dimensional data and descriptions of these components, as well as of the external tank, Tg, appear in Table II.

## TEST CONDITIONS

The test utilized the TWT Parallel Staging System (dual sting) model support hardware. Details of the construction and use of this test hardware are given in reference 2. Figure 4 indicates the manner in which the models were mounted on the dual stings for investigating the effects of vertical and longitudinal separation. Mounting the orbiter model inverted on the lower sting permits the investigation of those combinations of relative incidence and orbiter angle of attack of greatest interest. Tank only or mated configuration data were obtained using the MSFC Double Knuckle Sting #3 and Balance Adapter #3.

Relative pitch attitudes of the models in the tunnel were checked by inclinometer, using the dorsal surface of the orbiter, which is parallel to the fuselage reference line (FRL), and the constant-diameter section of the external tank. The roll attitude of the orbiter was verified to be zero following each change in lower sting length.

The pattern of relative separations (vertical and longitudinal) and relative incidence angles investigated is shown in figure 5.

The maximum tunnel blockage for this test occurred at 30 degrees angle of attack with the models in the mated configuration. The model cross-sectional area was approximately 6 square inches, such that the tunnel blockage, at  $M = 4.96$ , was some 4 percent.

No grit was applied to either model.

Base pressure measurements were recorded for both models. A measurement of cavity pressure was also made for the orbiter model. The two base pressure tubes on each of the models were "teed" together to provide an average base pressure reading. The orbiter and external tank base and cavity areas, together with the desired pressure tube locations, are shown in figures 6 and 7.

The nominal tunnel conditions prevailing during the test are given in Table III.

#### TEST FACILITY DESCRIPTION

The Marshall Space Flight Center 14" x 14" Transonic Wind Tunnel is an intermittent blowdown tunnel which operates by high pressure air flowing from storage to either vacuum or atmospheric conditions. A Mach number range from .2 to 5.85 is covered by utilizing two interchangeable test sections. The transonic section permits testing at Mach 0.20 through 2.50, and the supersonic section permits testing at Mach 2.74 through 5.85. Mach numbers between .2 and .9 are obtained by using a controllable diffuser. The range from .95 to 1.3 is achieved through the use of plenum suction and perforated walls. Mach numbers of 1.44, 1.93 and 2.50 are produced by interchangeable sets of fixed contour nozzle blocks. Above Mach 2.50 a set of fixed contour nozzle blocks are tilted and translated automatically to produce any desired Mach number in .25 increments.

Air is supplied to a 6000 cubic foot storage tank at approximately -40°F dew point and 500 psi. The compressor is a three-stage reciprocating unit driven by a 1500 hp motor.

The tunnel flow is established and controlled with a servo actuated gate valve. The controlled air flows through the valve diffuser into the stilling chamber and heat exchanger where the air temperature can be controlled from ambient to approximately 180°F. The air then passes through the test section which contains the nozzle blocks and test region.

Downstream of the test section is a hydraulically controlled pitch sector that provides a total angle of attack range of  $0^{\circ}$  ( $\pm 10^{\circ}$ ). Sting offsets are available for obtaining various maximum angles of attack up to  $90^{\circ}$ .

## DATA REDUCTION

Model reference dimensions used in data reduction are given in table I. It will be noted that three moment reference points (MRP) are specified: One each for the orbiter and external tank when supported separately, and the nominal mated vehicle MRP (orbiter nose projection on external tank centerline) when the combination is supported on a single sting.

All forces and moments were resolved in the body axis system and were resolved in the body axis system and were corrected for weight tares and sting deflections.

The raw data obtained during runs with the Staging Assembly (dual sting) hardware were corrected for changes in model relative positions induced by the aerodynamic loads. These corrections were accomplished through use of the double interpolation program described in reference 3.

During staging testing the individual model base axial force coefficients were determined in the following manner:

$$CAB_O = \frac{(P_{bo} + P_{co})}{2} - P_{\infty} \left( \frac{A_{bo}}{qS_{ref}} \right), \text{ Orbiter base axial force coefficient}$$

$$CAB_T = \frac{(P_{bE} - P_{\infty})}{qS_{ref}} A_{bE}, \text{ external tank base axial force coefficient}$$

For mated testing the following equations were utilized:

$$CN_U = \frac{F_N}{qS_{ref}}, \text{ normal force coefficient uncorrected for orbiter base drag}$$

$$CN = CN_U - CN_{B_O}, \text{ normal force coefficient corrected for orbiter base drag}$$

$$CAF = CAT - CAB_O - CAB_E, \text{ forebody axial force coefficient}$$

$$CY = \frac{F_Y}{qS_{ref}}, \text{ side force coefficient}$$

$$CLM_U = \frac{M_y}{qS_{ref}l_{ref}}, \text{ pitching moment coefficient uncorrected for orbiter base drag}$$

$$CLM = CLM_U + CN_{B_O} \frac{x_2}{l_{ref}} - CAB \frac{z_1}{l_{ref}}, \text{ pitching moment coefficient corrected for orbiter base drag}$$

# DATA REDUCTION (Concluded)

$$CYN = \frac{M_Z}{qS_{ref}b_{ref}}, \text{ yawing moment coefficient}$$

$$CBL = \frac{M_X}{qS_{ref}b_{ref}}, \text{ rolling moment coefficient}$$

$$CNB_0 = -CPB_0 \frac{A_{bo}}{S_{ref}} \sin i_b, \text{ normal force component of orbiter base drag}$$

$$CAB_0 = -CPB_0 \frac{A_{bo}}{S_{ref}} \cos i_b, \text{ axial force component of orbiter base drag}$$

$$CAB_E = -CPB_E \frac{A_{bE}}{S_{ref}}, \text{ tank base axial force coefficient}$$

$$\text{where: } CPB_0 = \frac{P_{b0} - P_{\infty}}{q}, \text{ orbiter base pressure coefficient}$$

$$CPB_E = \frac{P_{bE} - P_{\infty}}{q}, \text{ tank base pressure coefficient}$$

$$i_b = 12^\circ, \text{ orbiter base slant angle (average)}$$

$$X_2 = 5.231 \text{ inches, axial moment arm for orbiter base drag}$$

$$Z_1 = 1.383 \text{ inches, vertical moment arm for orbiter base drag}$$

## REFERENCES

1. NASA TM X-53185, "The George C. Marshall Space Flight Center's 14 x 14 inch Trisonic Wind Tunnel Technical Handbook" by Erwin Simon, December 22, 1964. NASA, George C. Marshall Space Flight Center.
2. Northrop Services, Inc. M-9241-72-69, "MSFC 14" TWT Dual Sting Support Mechanism Users Information," by Paul Cole, dated 10 May 1972.
3. Northrop Services, Inc. M-9241-72-67, "Double Interpolation Program for Use with MSFC Staging Mechanism," by Paul Cole, dated 1 May 1972.

TABLE 1. ORBITER/EXTERNAL TANK REFERENCE DIMENSIONS

PARAMETER	ORBITER		EXTERNAL TANK	
	Full Scale	Model Scale	Full Scale	Model Scale
Reference Area ( $S_{ref}$ )	2690 ft <sup>2</sup>	6.198 in <sup>2</sup>	2690 ft <sup>2</sup>	6.198 in <sup>2</sup>
Reference Length ( $l_{ref}$ )	1328.3 in	5.313 in	1328.3 in	5.313 in
Reference Span ( $b_{ref}$ )	1328.3 in	5.313 in	1328.3 in	5.313 in
Moment Reference Center (MRP), from nose:				
Orbiter Alone	867.7 in (66% $l_{ref}$ on FRL)	3.507 in		
External Tank Alone			929.0 in (50% tank length, on $\underline{g}$ )	3.716 in
Mated Vehicle			635 in (orbiter nose projection on tank $\underline{g}$ )	2.540 in
Base Area ( $A_b$ )	427.8 ft <sup>2</sup>	0.9857 in <sup>2</sup>	572.55 ft <sup>2</sup>	1.319 in <sup>2</sup>
Cavity Area ( $A_c$ )	137.5 ft <sup>2</sup>	0.3167 in <sup>2</sup>		

# ORBITER BALANCE DATA

TABLE II.

TEST: MSFC 571 (1A6A)

DATA SET/RUN NUMBER COLLATION SUMMARY

DATE: MAY 2, 1973

DATA SET IDENTIFIER		CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF RUNS	TEST RUN NUMBERS																																																																																	
			$\alpha$	$\beta$	M	$\delta e$	$\delta a$	$\delta i$	$\delta \omega$	$\Delta \alpha$	$\Delta \beta$	$\Delta Y$	$\Delta Z$																																																																																				
R85001	$\Phi_{13}/T_9$	A	0	4%	0	0	0	0	40	-5	0	0	0	0	0	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

1 7 13 19 25 31 37 43 49 55 61 67 73 79

CN CLM CY CYN COL CAF CAB COEFFICIENTS

DELTA X ALPHA

$\alpha$  OR  $\beta$  A)  $-5^\circ, -2^\circ, 0^\circ, 2^\circ, 5^\circ$

SCHEDULES

TABLE II. (Continued)

[illegible]

TABLE II. (Continued)

DATE: MAY 2, 1973

DATA SET RUN NUMBER COLLATION SUMMARY

TEST: MSFC TWT 571 (IA6A)

[illegible]

	7	13	19	25	31	37	43	49	55	61	67	73	79	85	91	97	103	109	115	121	127	133	139	145	151	157	163	169	175	181	187	193	199	205	211	217	223	229	235	241	247	253	259	265	271	277	283	289	295	301	307	313	319	325	331	337	343	349	355	361	367	373	379	385	391	397	403	409	415	421	427	433	439	445	451	457	463	469	475	481	487	493	499	505	511	517	523	529	535	541	547	553	559	565	571	577	583	589	595	601	607	613	619	625	631	637	643	649	655	661	667	673	679	685	691	697	703	709	715	721	727	733	739	745	751	757	763	769	775	781	787	793	799	805	811	817	823	829	835	841	847	853	859	865	871	877	883	889	895	901	907	913	919	925	931	937	943	949	955	961	967	973	979	985	991	997	1003	1009	1015	1021	1027	1033	1039	1045	1051	1057	1063	1069	1075	1081	1087	1093	1099	1105	1111	1117	1123	1129	1135	1141	1147	1153	1159	1165	1171	1177	1183	1189	1195	1201	1207	1213	1219	1225	1231	1237	1243	1249	1255	1261	1267	1273	1279	1285	1291	1297	1303	1309	1315	1321	1327	1333	1339	1345	1351	1357	1363	1369	1375	1381	1387	1393	1399	1405	1411	1417	1423	1429	1435	1441	1447	1453	1459	1465	1471	1477	1483	1489	1495	1501	1507	1513	1519	1525	1531	1537	1543	1549	1555	1561	1567	1573	1579	1585	1591	1597	1603	1609	1615	1621	1627	1633	1639	1645	1651	1657	1663	1669	1675	1681	1687	1693	1699	1705	1711	1717	1723	1729	1735	1741	1747	1753	1759	1765	1771	1777	1783	1789	1795	1801	1807	1813	1819	1825	1831	1837	1843	1849	1855	1861	1867	1873	1879	1885	1891	1897	1903	1909	1915	1921	1927	1933	1939	1945	1951	1957	1963	1969	1975	1981	1987	1993	1999	2005	2011	2017	2023	2029	2035	2041	2047	2053	2059	2065	2071	2077	2083	2089	2095	2101	2107	2113	2119	2125	2131	2137	2143	2149	2155	2161	2167	2173	2179	2185	2191	2197	2203	2209	2215	2221	2227	2233	2239	2245	2251	2257	2263	2269	2275	2281	2287	2293	2299	2305	2311	2317	2323	2329	2335	2341	2347	2353	2359	2365	2371	2377	2383	2389	2395	2401	2407	2413	2419	2425	2431	2437	2443	2449	2455	2461	2467	2473	2479	2485	2491	2497	2503	2509	2515	2521	2527	2533	2539	2545	2551	2557	2563	2569	2575	2581	2587	2593	2599	2605	2611	2617	2623	2629	2635	2641	2647	2653	2659	2665	2671	2677	2683	2689	2695	2701	2707	2713	2719	2725	2731	2737	2743	2749	2755	2761	2767	2773	2779	2785	2791	2797	2803	2809	2815	2821	2827	2833	2839	2845
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TABLE II. (Continued)

TANK BALANCE DATA

TEST : MSFC TWIT 57i (JA6A)

DATA SET/RUN NUMBER COLLATION SUMMARY

DATE : 10/1/77

DATA SET IDENTIFIER		CONFIGURATION	SCHD.		PARAMETERS/VALUES											NO. OF RUNS		Δ X		TEST RUN NUMBER
			α	β	M	δe	δa	δr	δx	Δα	Δβ	Δγ	ΔZ							
R85T01		T9/D13	A	0	496	0	0	0	40	-5	0	0	0			0	1296	2592	3228	
02										0			0			19	20	21	22	
03										-5			.648			35	40	41	46	
04										0						26	25	24	23	
05										5			↓			36	39	42	45	
06										-5			1.944			65	68	69	72	
07										0						27	28	29	30	
08										5						37	38	43	44	
09										10			↓			66	67	70	71	
10										0			3.240			85	88	89	92	
11										5						31	32	33	34	
12										10			↓			15	16	7	3	
13										0			0			96	97	90	91	
14										0						52			47	
15										0			.648			51			18	
16										5			.648			76			13	
17										0			1.944			50			41	
18										5			1.944			75			77	

α OR β SCHEDULES

A) -5°, -2°, 0°, 2°, 5°

**TABLE II. (Concluded)**

DATE: MAY 2, 1973

TEST: MSFC TWT 57 (IA6A)

TEST RUN NUMBER 6																	
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										NO. OF PUNS	$\Delta X$		
		$\alpha$	$\beta$	M	$\delta e$	$\delta a$	$\delta r$	$\delta \theta$	$\Delta x$	$\Delta y$	$\Delta z$	0	1296		2.592	3.520	
R05T18	T9 / $\phi 13$	A	0	496	-20	0	0	40	0	0	0			53			58
19									0		.648			54			57
20									5		.648			80			77
21									0		1.944			55			56
22									5		1.944			79			78
23					-40				0		0			64			59
24									0		.648			63			60
25									5		.648			81			84
26									0		1.944			62			61
27									5		1.944			82			83
28	T9	C	0	-	-	-	-	-	-	-	-			95			
29	T9	O	C	-	-	-	-	-	-	-	-			96			
				</													

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SECTION 8

### TABLE III

[illegible]

BALANCE UTILIZED: MSFC231

	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE:
NF	<u>122 lbs.</u>	<u>+0.61 lbs.</u>	<u>+0.032</u>
SF	<u>52 lbs.</u>	<u>+0.26 lbs.</u>	<u>+0.014</u>
AF	<u>22 lbs.</u>	<u>+0.10 lbs.</u>	<u>+0.005</u>
PM	<u>122 in.-lbs.</u>	<u>+0.61 in.-lbs.</u>	<u>+0.006</u>
RM	<u>30 in.-lbs.</u>	<u>+0.15 in.-lbs.</u>	<u>+0.001</u>
YM	<u>53 in.-lbs.</u>	<u>+0.27 in.-lbs.</u>	<u>+0.003</u>

COMMENTS: Accuracy based on  $\pm 0.5\%$  of balance capacity.

TABLE III (Concluded)

[illegible]

BALANCE UTILIZED: MSFC 232

	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE:
NF	<u>300 lbs.</u>	<u>+1.50 lbs.</u>	<u>+0.079</u>
SF	<u>143 lbs.</u>	<u>+0.72 lbs.</u>	<u>+0.038</u>
AF	<u>50 lbs.</u>	<u>+0.25 lbs.</u>	<u>+0.013</u>
PM	<u>400 in.-lbs.</u>	<u>+2.00 in.-lbs.</u>	<u>+0.020</u>
RM	<u>100 in.-lbs.</u>	<u>+0.50 in.-lbs.</u>	<u>+0.005</u>
YM	<u>192 in.-lbs.</u>	<u>+0.96 in.-lbs.</u>	<u>+0.009</u>

COMMENTS: Accuracy based on + 0.5% of balance capacity.

TABLE IV. MODEL COMPONENT DIMENSIONS

MODEL COMPONENT: BLO BodyGENERAL DESCRIPTION: Emulog, PA Sea Operation, High-Speed Operation,  
For Rockwell Lines VL70-0000000000.Scale Model: 0.001DRAWING NUMBER: VL70-000000 "B"  
VL70-000000, "A", "A"

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length ~ in.	<u>1328.3</u>	<u>5.313</u>
Max. Width ~ in. ( $X_0 = 1528.3$ )	<u>265.0</u>	<u>1.060</u>
Max. Depth ~ in. ( $X_0 = 1480.52$ )	<u>248.0</u>	<u>0.972</u>
Fineness Ratio	<u>5.012</u>	<u>5.012</u>
Area $Ft^2$		
Max. Cross-Sectional	<u>456.4</u>	<u>1.826</u>
Planform	<u>          </u>	<u>          </u>
Wetted	<u>          </u>	<u>          </u>
Base	<u>          </u>	<u>          </u>

TABLE IV.  
(Continued)

Sheet 2 of 10

MODEL COMPONENT: Canopy - C5

GENERAL DESCRIPTION: 2A Configuration Per Line

VL7C-000092.

Scale Model = 0.004

DRAWING NUMBER: VL7C-000092

DIMENSIONS:

FULL-SCALE

MODEL SCALE

Length (STA Fwd Bulkhead)

391.0

1.564

Max. Width (T.E. Bulkhead)

560.0

2.240

Max. Depth (WP Z = 421.922 to Z = 500)

Fineness Ratio

Area

Max. Cross-Sectional

Planform

Wetted

Base

TABLE IV  
(Continued)

Sheet 3 of 10

MODEL COMPONENT: Manipulator Housing D-7

GENERAL DESCRIPTION: 2A Configuration Per NR Lines VL70.000092

Scale Model = 0.004

DRAWING NUMBER: VL70.000093

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length ~ in.	<u>881.00</u>	<u>3.524</u>
Max. Width ~ in.	<u>51.00</u>	<u>0.204</u>
Max. Depth ~ in.	<u>23.00</u>	<u>0.092</u>
Fineness Ratio	<u>          </u>	<u>          </u>
Area		
Max. Cross-Sectional	<u>          </u>	<u>          </u>
Planform	<u>          </u>	<u>          </u>
Wetted	<u>          </u>	<u>          </u>
Base	<u>          </u>	<u>          </u>

⊕ Fuselage      BP = 0.00  
                   WP = 500.0 INFS  
                   X.426.0 to 1307.0 INFS

TABLE IV  
(Continued)

Sheet 4 of 10

MODEL COMPONENT: Eleven E-18

GENERAL DESCRIPTION: 2A Configuration Per W-87

Rockwell Lines VL70-000093

Data for (1) of (2) Sides

Scale Model = 0.004

DRAWING NUMBER: VL70-000093

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area ~ $\text{FT}^2$	<u>205.52</u>	<u>0.003</u>
Span (equivalent) ~ in.	<u>353.34</u>	<u>1.413</u>
Inb'd equivalent chord	<u>114.78</u>	<u>0.459</u>
Outb'd equivalent chord	<u>55.00</u>	<u>0.220</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>.208</u>	<u>.208</u>
At Outb'd equiv. chord	<u>.400</u>	<u>.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>0.00</u>	<u>0.00</u>
Tailing Edge	<u>-10.24</u>	<u>-10.24</u>
Hingeline	<u>0.00</u>	<u>0.00</u>
Area Moment (Normal to hinge line) ~ $\text{FT}^3$	<u>1548.07</u>	<u>0.0001</u>
Product of Area Moment		

TABLE IV.  
(Continued)

Sheet 5 of 10

MODEL COMPONENT: 74 Body Plan

GENERAL DESCRIPTION: 2A Configuration Per NR Lines

VL70.00009LA

Scale Model = 0.004

DRAWING NUMBER: VL70-00009LA

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length	<u>84.70</u>	<u>0.339</u>
Max. Width	<u>265.00</u>	<u>1.060</u>
Max. Depth	<u>          </u>	<u>          </u>
Fineness Ratio	<u>          </u>	<u>          </u>
Area ~ Ft <sup>2</sup>	<u>          </u>	<u>          </u>
Max. Cross-Sectional	<u>          </u>	<u>          </u>
Planform	<u>142.64</u>	<u>0.571</u>
Wetted	<u>          </u>	<u>          </u>
Base ~ Ft <sup>2</sup>	<u>38.65</u>	<u>0.0006</u>

TABLE IV (Continued)

MODEL COMPONENT: CMS POD - M3

GENERAL DESCRIPTION: 2A Light Weight Configuration Per NR Lines

VL70-000094A

Scale Model = 0.004

DRAWING NUMBER: VL70-000094A

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length	<u>346.0</u>	<u>1.384</u>
Max. Width $X_0 = 1450.0$	<u>108.0</u>	<u>0.432</u>
Max. Depth $X_0 = 1500.0$	<u>113.0</u>	<u>0.452</u>
Fineness Ratio	<u>          </u>	<u>          </u>
Area		
Max. Cross-Sectional	<u>          </u>	<u>          </u>
Planform	<u>          </u>	<u>          </u>
Wetted	<u>          </u>	<u>          </u>
Base	<u>          </u>	<u>          </u>

☒ OF CMS POD

WP = 463.9 INFS : WP 400 + 63.9 = 463.9

BP = 80.0 INFS

Length 1214.0 to 1560.0 = 346.0 INFS

MODEL COMPONENT: R5-RudderGENERAL DESCRIPTION: 2A Configuration Per Rockwell Lines VL70-000095Scale Model = 0.004DRAWING NUMBER: VL70-000095

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area ~ FT <sup>2</sup>	<u>106.38</u>	<u>0.0017</u>
Span (equivalent) ~ in.	<u>201.0</u>	<u>0.80%</u>
Inb'd equivalent chord	<u>91.585</u>	<u>0.366</u>
Outb'd equivalent chord	<u>50.833</u>	<u>0.203</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
At Outb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>34.83</u>	<u>34.83</u>
Tailing Edge	<u>26.25</u>	<u>26.25</u>
Hingeline	<u>34.83</u>	<u>34.83</u>
Area Moment (Normal to hinge line) ~ FT <sup>3</sup>	<u>526.13</u>	<u>0.00003</u>
Product of area and mean chord		

TABLE IV (Continued)

MODEL COMPONENT: VERTICAL - V4 (Light Wt. Orbiter Configuration)GENERAL DESCRIPTION: Contouring Vertical Tail, Double WedgeAirfoil with Rounded Leading EdgeScale Model = 0.007DRAWING NUMBER:VL70-000094DIMENSIONS:FULL-SCALEMODEL SCALETOTAL DATA

Area (Theo) $\text{Ft}^2$	413.25	0.007
Planform		
Span (Theo) In	315.72	1.97
Aspect Ratio	1.675	1.675
Rate of Taper	0.557	0.557
Taper Ratio	.404	.404
Sweep Back Angles, degrees		
Leading Edge	45.000	45.000
Trailing Edge	26.249	26.249
0.25 Element Line	41.130	41.130
Chords:		
Root (Theo) WP	268.50	1.074
Tip (Theo) WP	108.47	0.45
MAC	199.81	0.799
Fus. Sta. of .25 MAC	1463.50	5.85
W. P. of .25 MAC	635.522	2.542
B. L. of .25 MAC	0.00	0.00
Airfoil Section		
Leading Wedge Angle Deg	10.000	10.000
Trailing Wedge Angle Deg	14.920	14.920
Leading Edge Radius ~in.	2.00	0.008
Void Area ~ $\text{Ft}^2$	13.17	0.0002
Blanketed Area ~ $\text{Ft}^2$	12.67	0.0002

TABLE IV (Continued)

Sheet 9 of 10

MODEL COMPONENT: WING-W 27 New Light Weight Orbiter

GENERAL DESCRIPTION: Orbiter Configuration Per Lines

Note: (Dihedral angle is defined at the lower surface of the wing at the 75.75% chord line projected into a plane perpendicular to the P.A.L.)

Scale Model = 0.001

TEST NO.

DWG. NO. V170-000000

DIMENSIONS:

FULL-SCALE

MODEL SCALE

## TOTAL DATA

Area (Theo.) Ft<sup>2</sup>

Planform

Span (Theo) In.

Aspect Ratio

Rate of Taper

Taper Ratio

Dihedral Angle, degrees

Incidence Angle, degrees

Aerodynamic Twist, degrees

Sweep Back Angles, degrees

Leading Edge

Trailing Edge

0.25 Element Line

Chords:

Root (Theo) B.P.O.O.

Tip, (Theo) B.P.

MAC

Fus. Sta. of .25 MAC

W.P. of .25 MAC

B.L. of .25 MAC

## EXPOSED DATA

Area (Theo) Ft<sup>2</sup>

Span, (Theo) In. BP108

Aspect Ratio

Taper Ratio

Chords

Root BP108

Tip 1.00  $\frac{b}{2}$ 

MAC

Fus. Sta. of .25 MAC

W.P. of .25 MAC

B.L. of .25 MAC

Airfoil Section (Rockwell Mod NASA)  
XXXX-64Root  $\frac{b}{2}$  = 0.425Tip  $\frac{b}{2}$  = 1.00

Data for (1) of (2) Sides

Leading Edge Cuff

Planform Area Ft<sup>2</sup>

Leading Edge Intersects Fus M. L. @ Sta

Leading Edge Intersects Wing @ Sta 30

TABLE IV (Concluded)

MODEL COMPONENT: T9 - External TankGENERAL DESCRIPTION: 2A Configuration per Rockwell linesBody of RevolutionScale Model = .004DRAWING NUMBER: \_\_\_\_\_

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length, in.	<u>1826.0</u>	<u>7.304</u>
Max. Width (Dia.), in.	<u>324.0</u>	<u>1.296</u>
Max. Depth	_____	_____
Fineness Ratio, L/D	<u>5.73457</u>	<u>5.73457</u>
Area, Ft <sup>2</sup>		
Max. Cross-Sectional	<u>572.56</u>	<u>0.00916</u>
Planform	_____	_____
Wetted	_____	_____
Base	<u>572.56</u>	<u>0.00916</u>

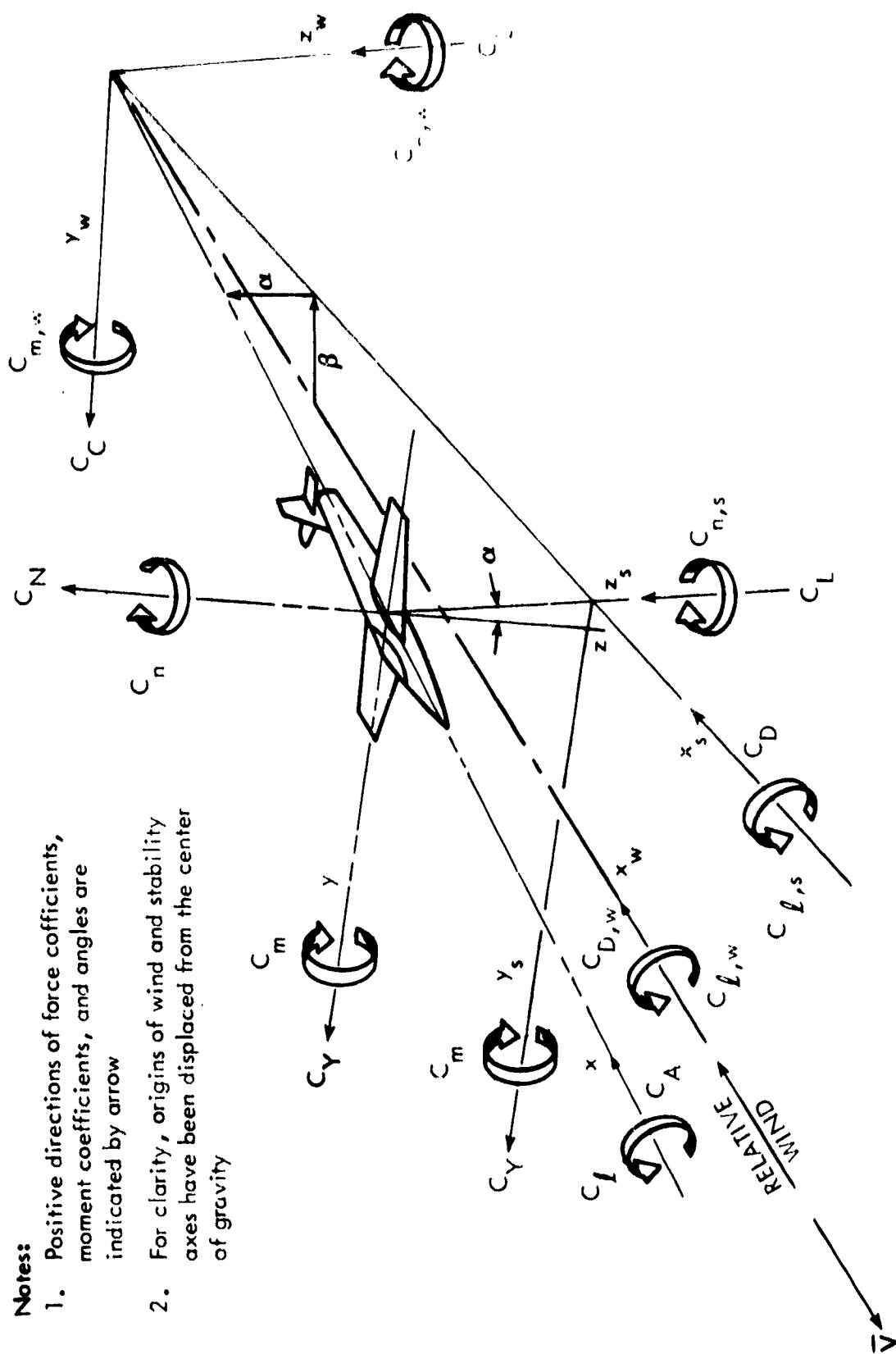
Ref:

FS (Orbiter) = 0.00 = Tank Station 635.0 Infs

WP (ET) = WP400 (Orbiter) -344.4 Infs = 55.6 Infs

BP (Orbiter) = 0.00 = 0.00 ET

NOTE: T9 Similar to T8 except retro pkg. removed  
 Nose of T9 has 30" radius FS



- Notes:**
1. Positive directions of force coefficients, moment coefficients, and angles are indicated by arrow
  2. For clarity, origins of wind and stability axes have been displaced from the center of gravity

Figure 1. - Axis Systems.

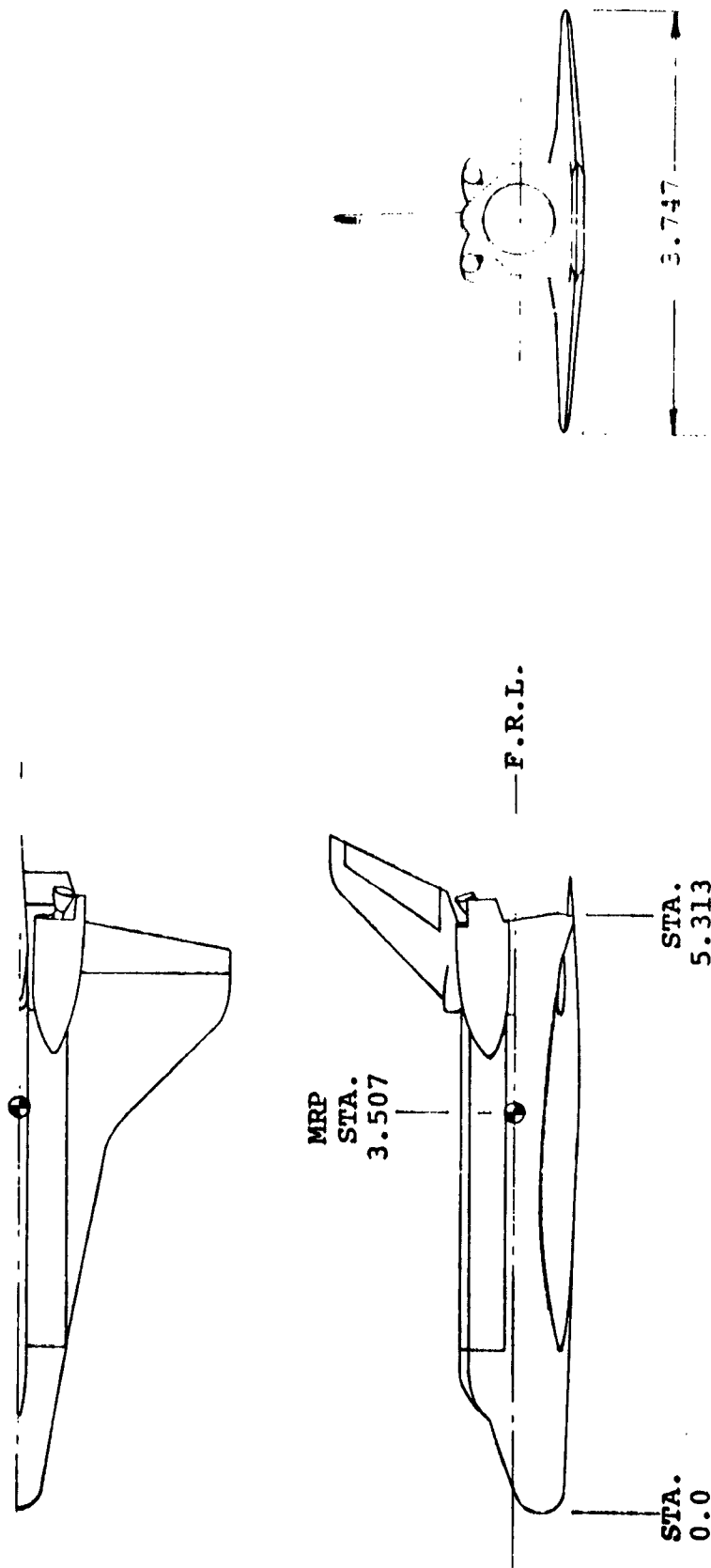


Figure 2. - General Arrangement of Orbiter Model.

DIMENSIONS ARE INCHES MODEL SCALE

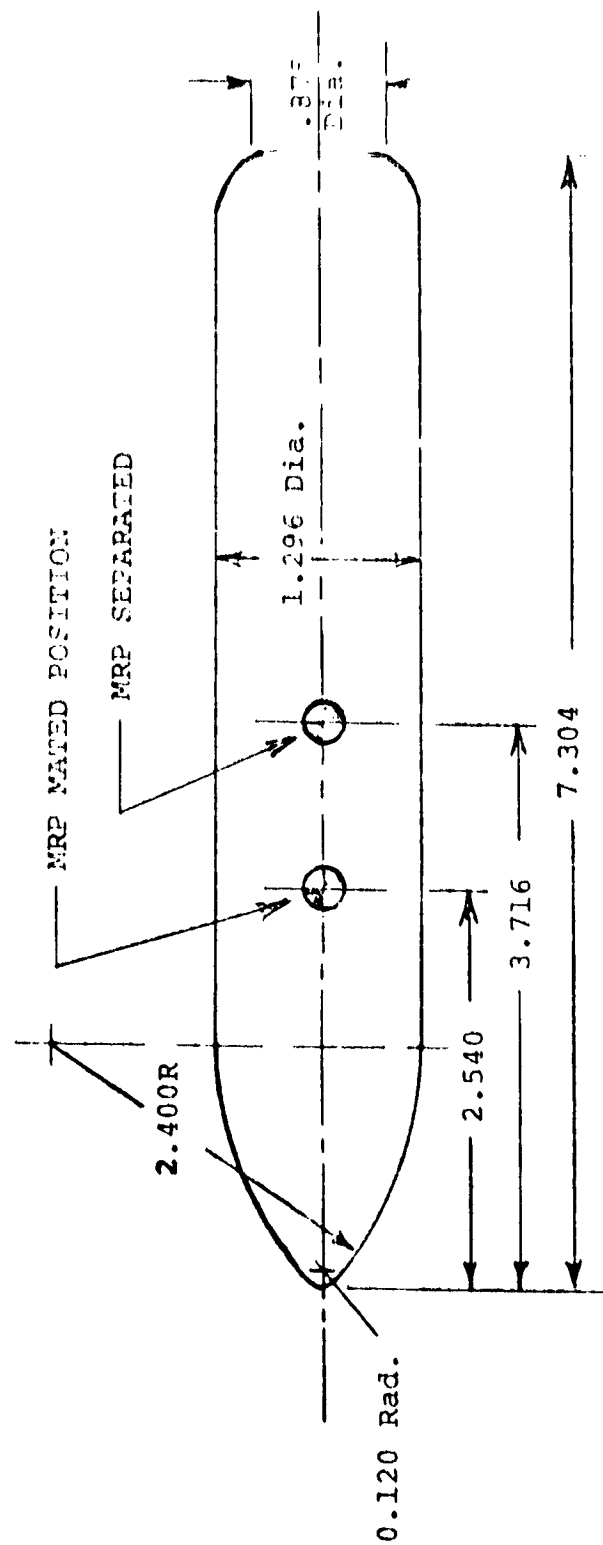


Figure 3. - General Arrangement, External Tank Tg.

Tunnel Sta. 20  
(Sector Pivot)

Tunnel Sta. 0

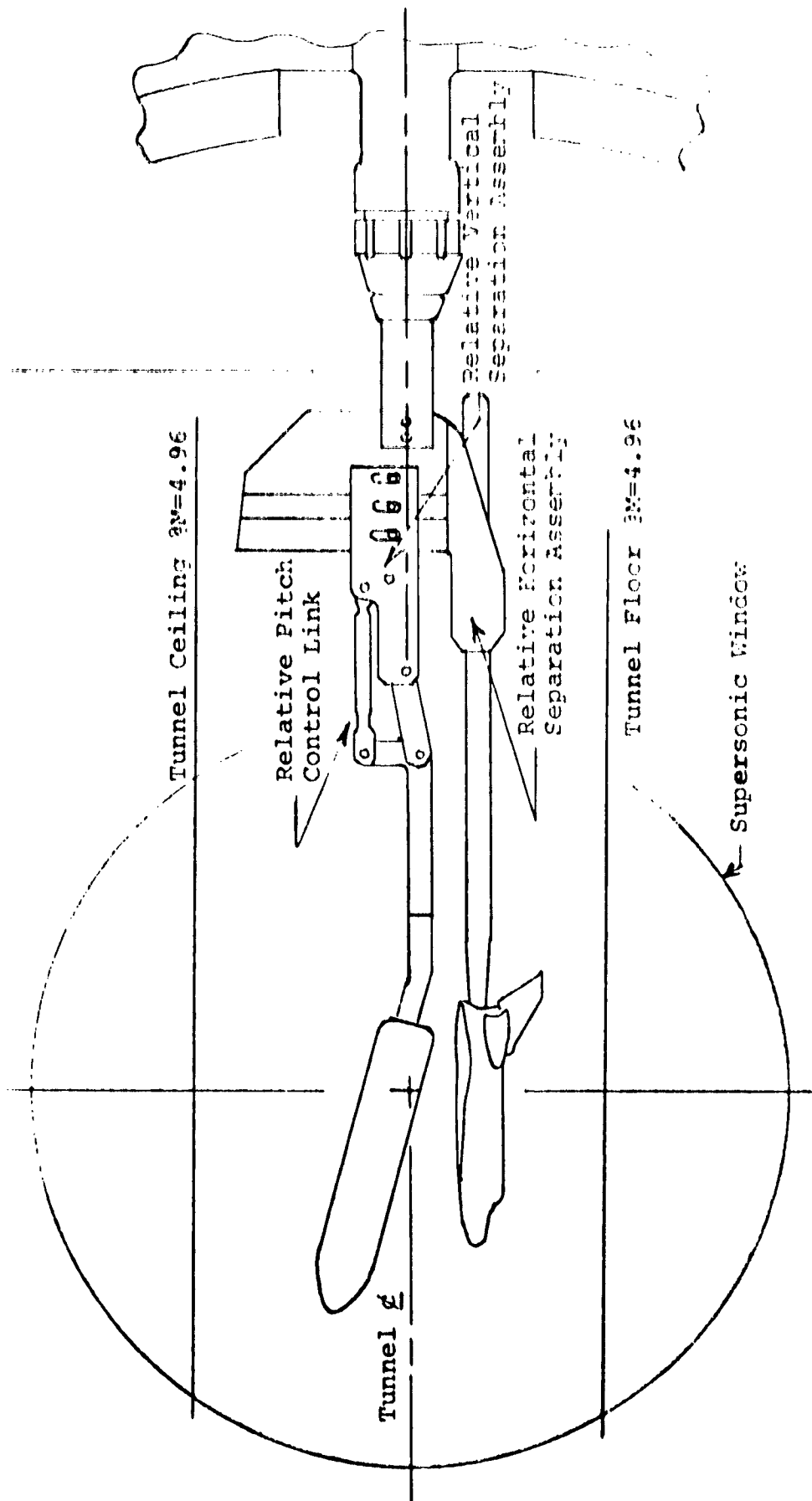


Figure 4. - Orbiter and External Tank Mounted on  
14x14-In. TWT Dual Staging Mechanism.

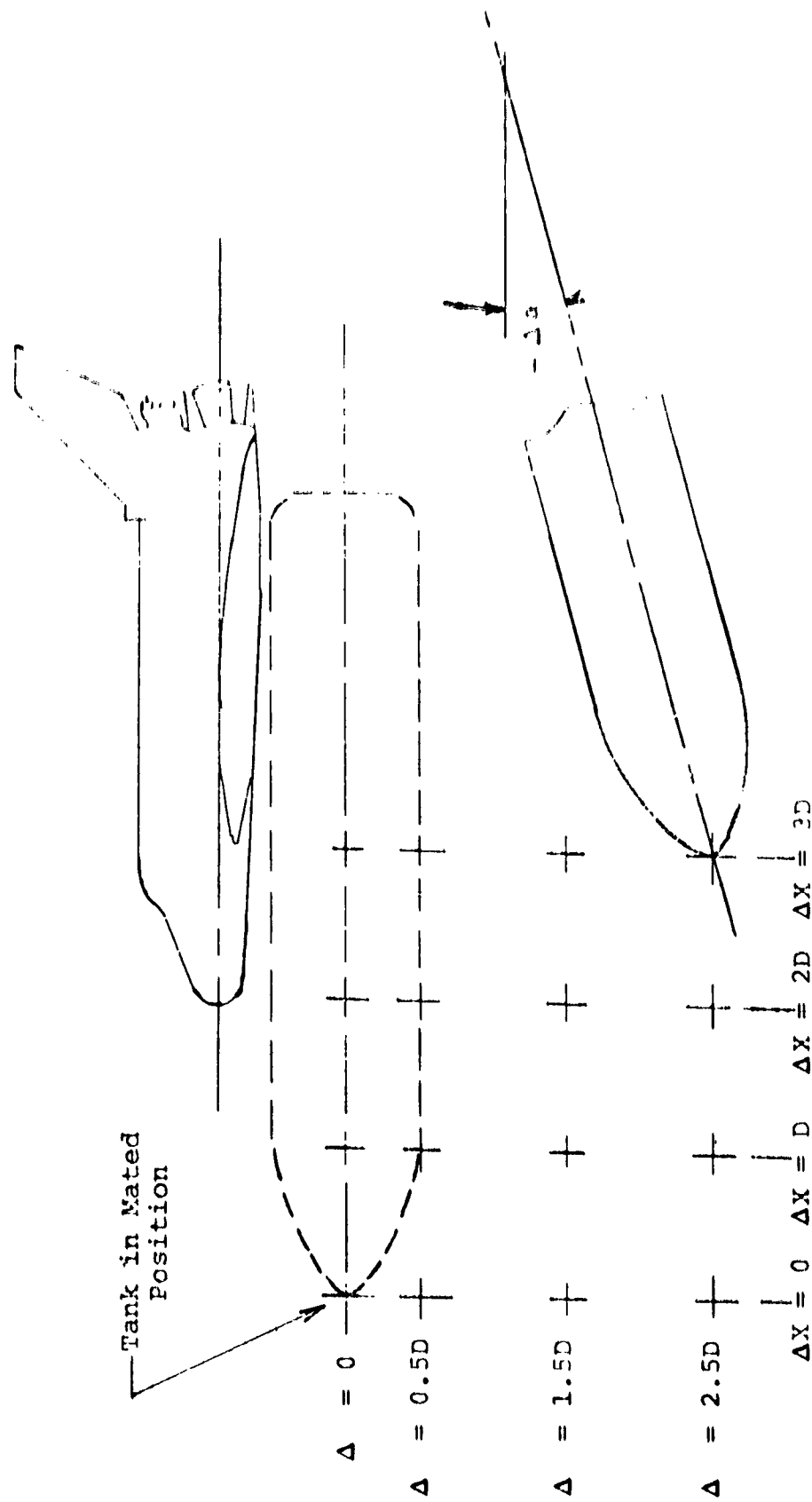


Figure 5. - Matrix of Pitch-Plane Displacements for 0.001-Scale Model Orbiter/External Tank Separation Test.

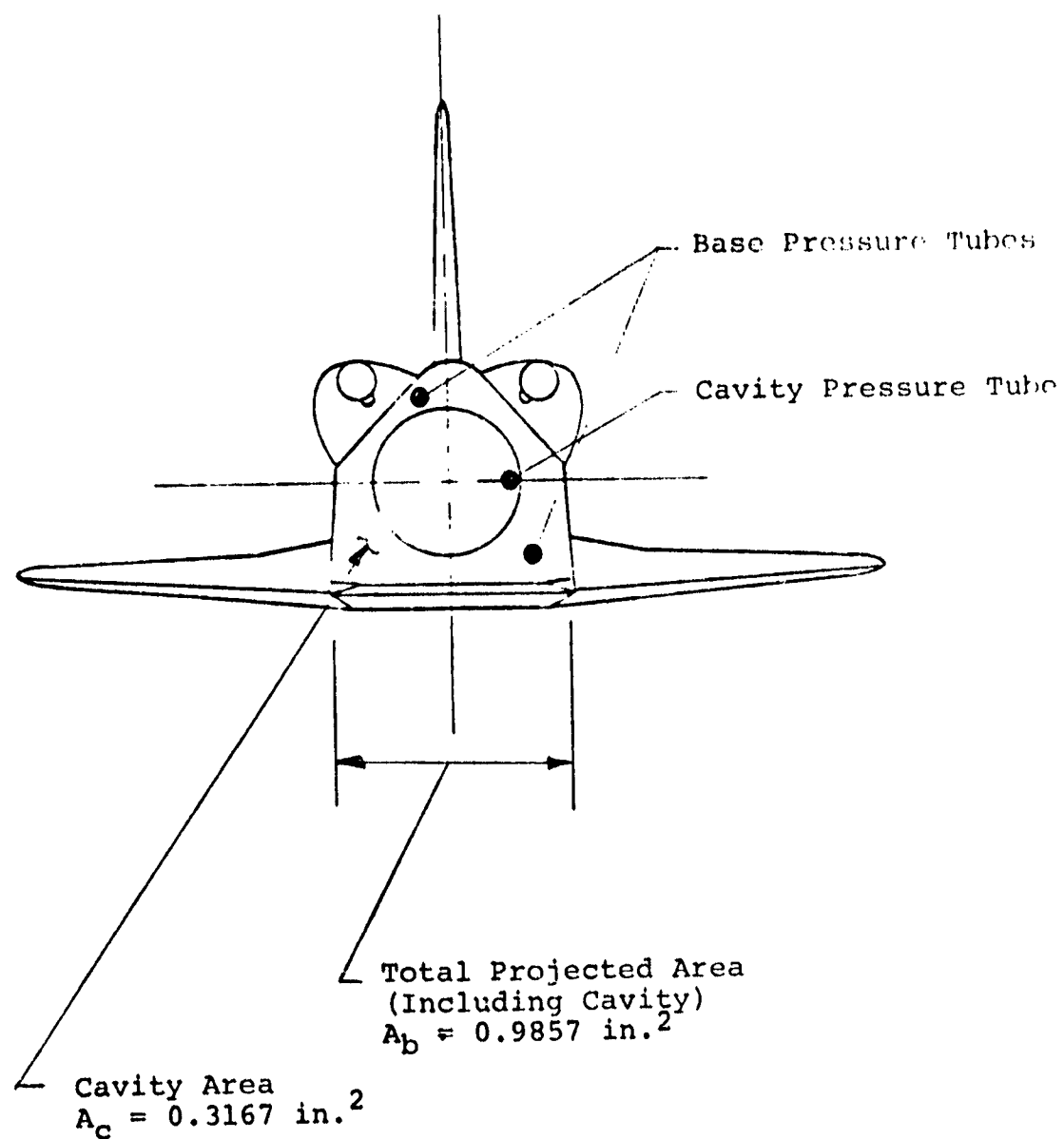


Figure 6. - Definition of Base and Cavity Areas and Pressure Tube Locations.

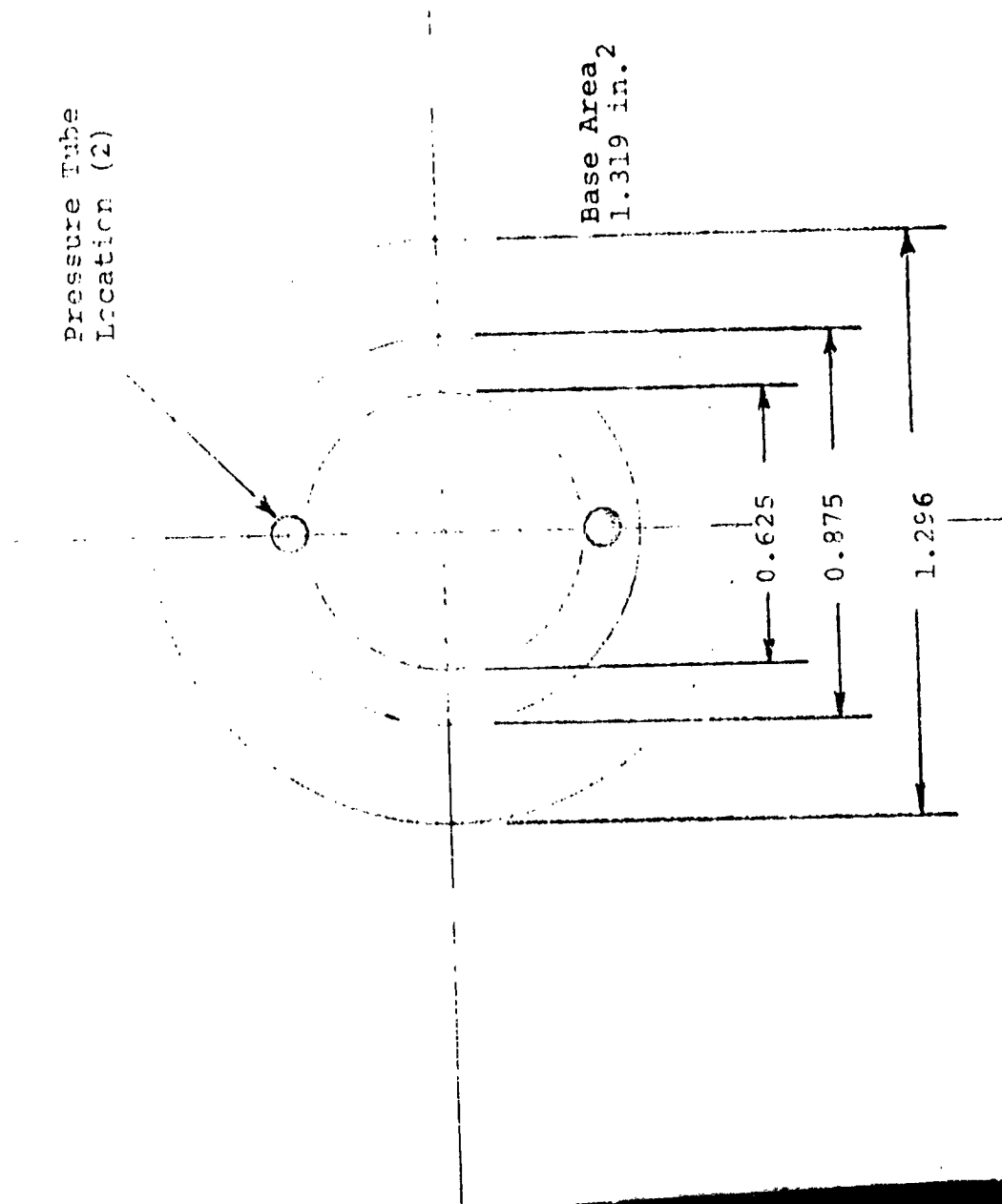


Figure 7. - Base Area and Pressure Tube Locations,  
External Tank Tg.

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR.

DATA FIGURES





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486.000

ALPHA  
MACH  
A ILRON  
R JOFLR  
DELTA B

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RUDDER	.000
DELTAA	40.000
DELTAY	.000

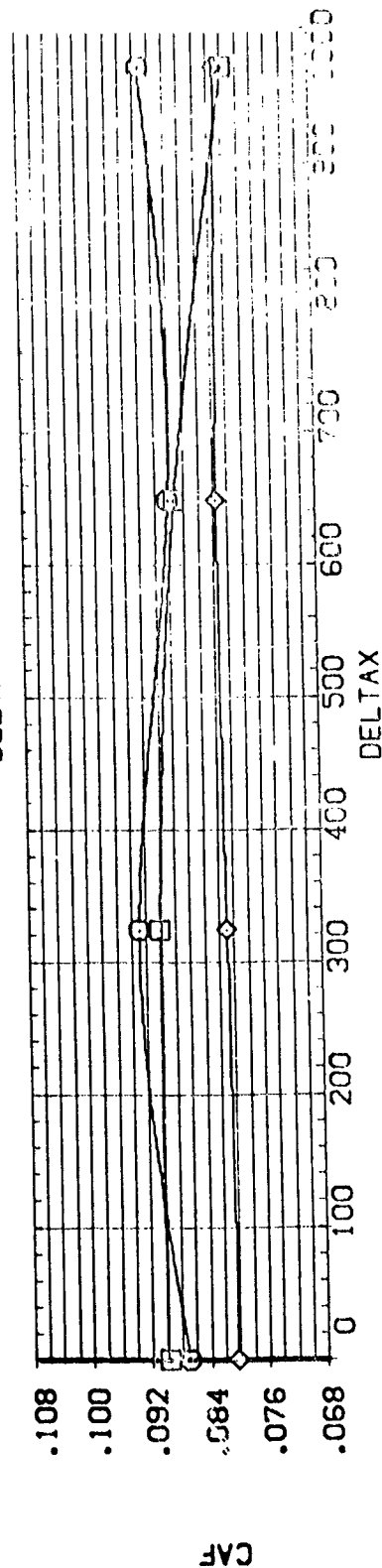
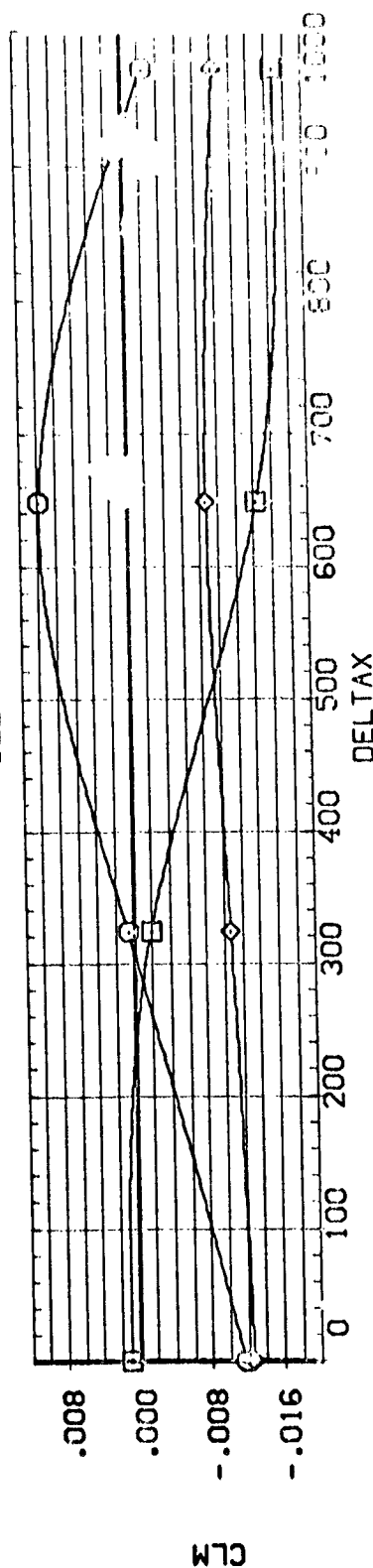
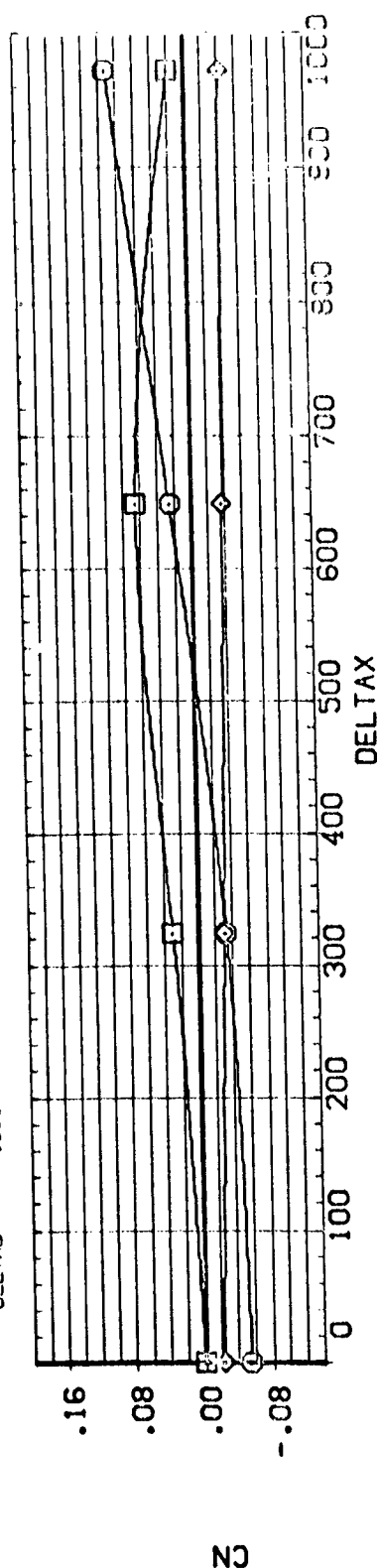
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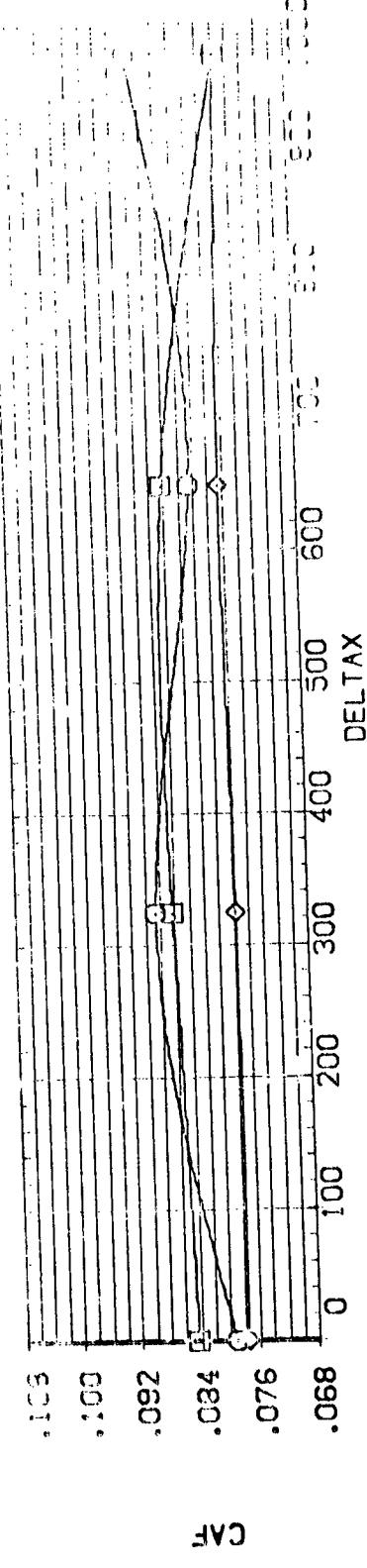
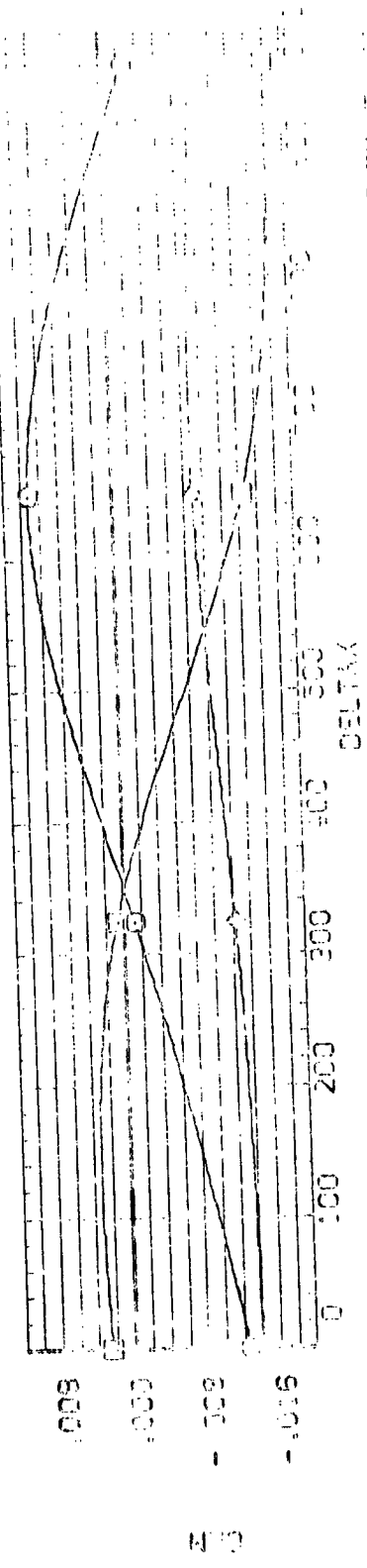
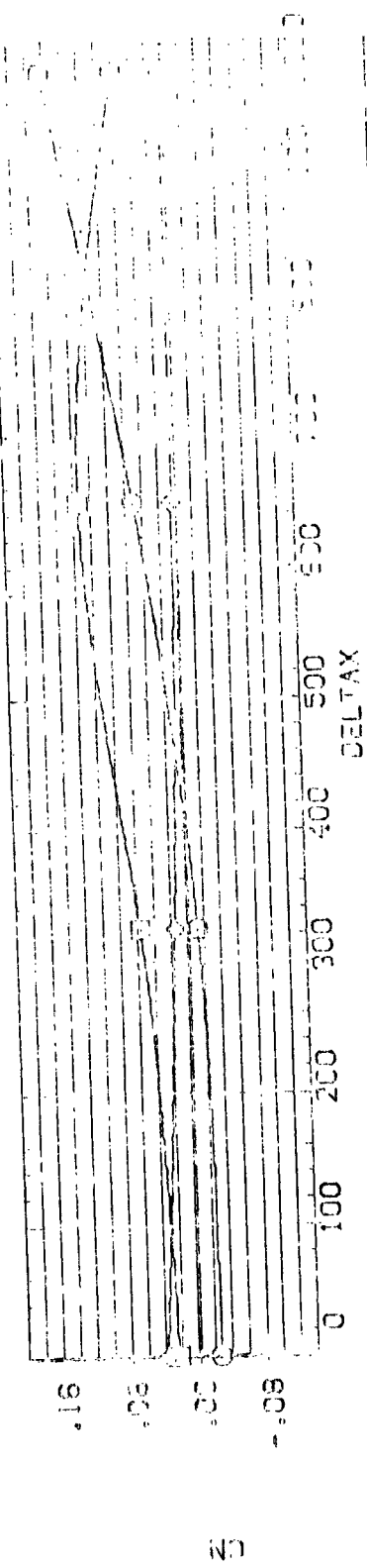
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# M571(1A6A) ORB (013) WITH TANK (19) SEPARATING 1982010

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BASIC SEPARATION DATA- ORBITER IN PRESENCE OF EXTERNAL TANK



..... AND [T9] SEPARATING (N85G02)

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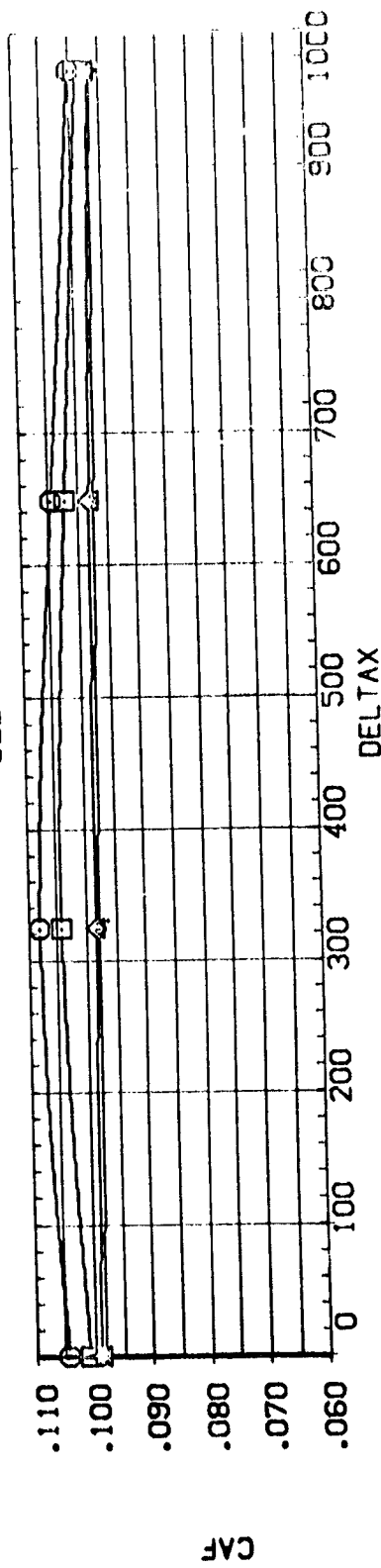
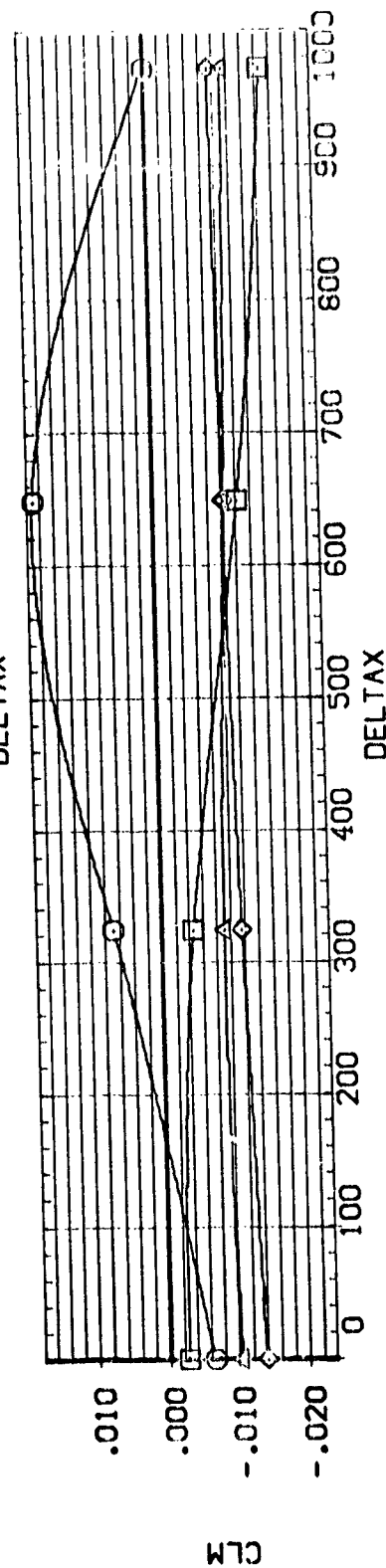
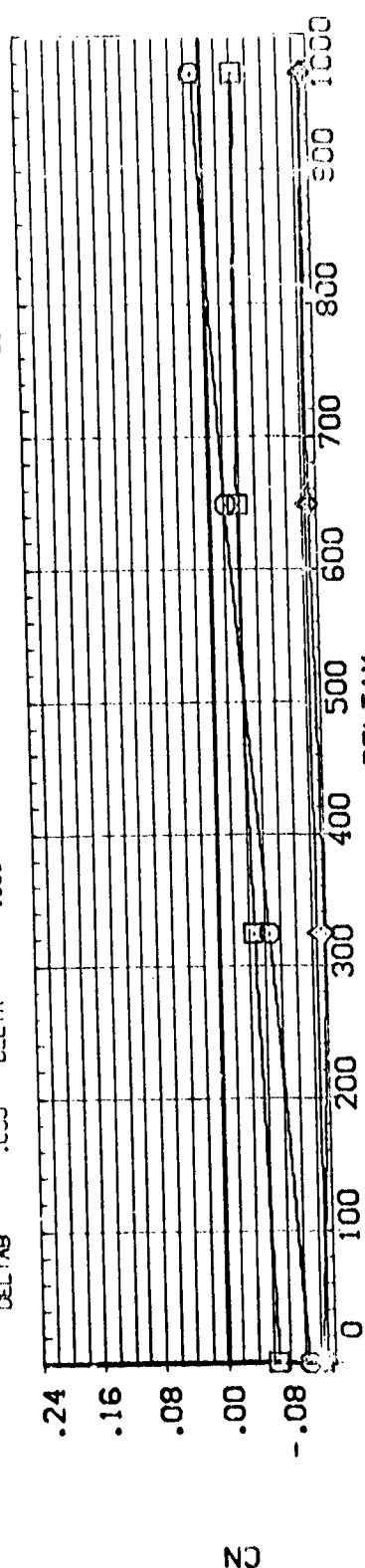
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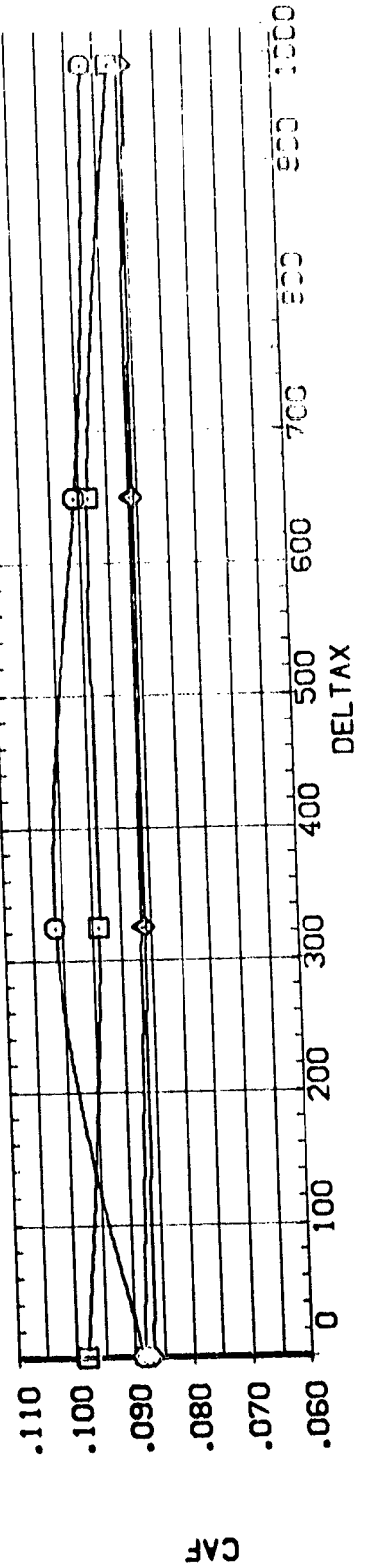
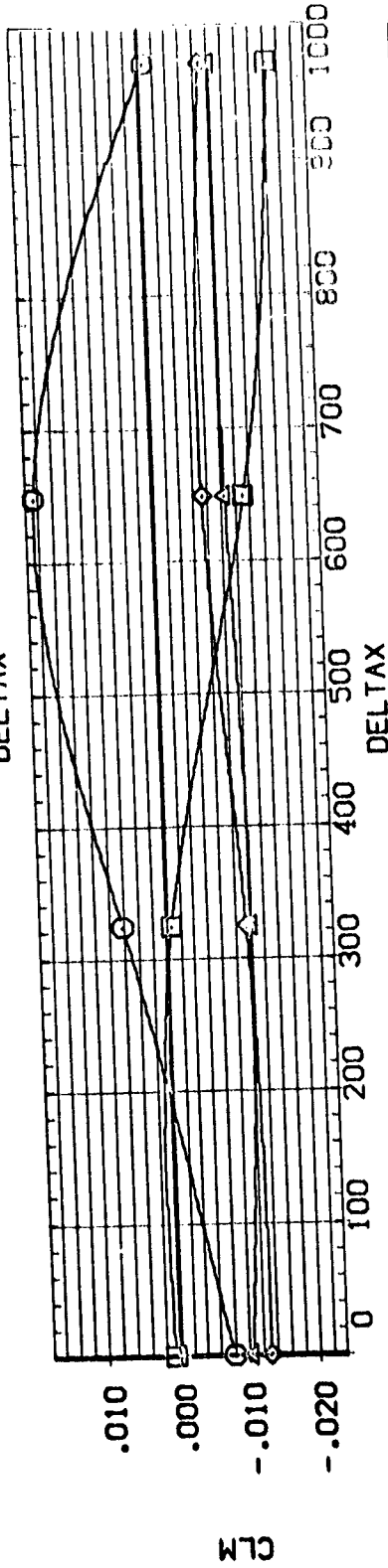
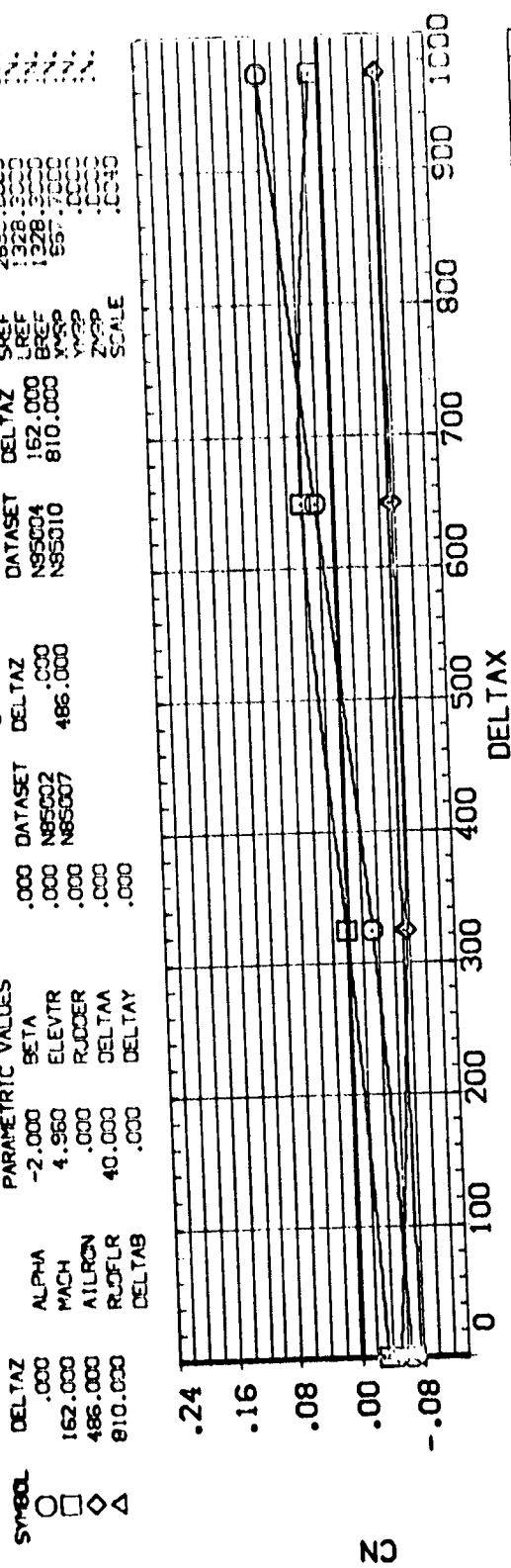
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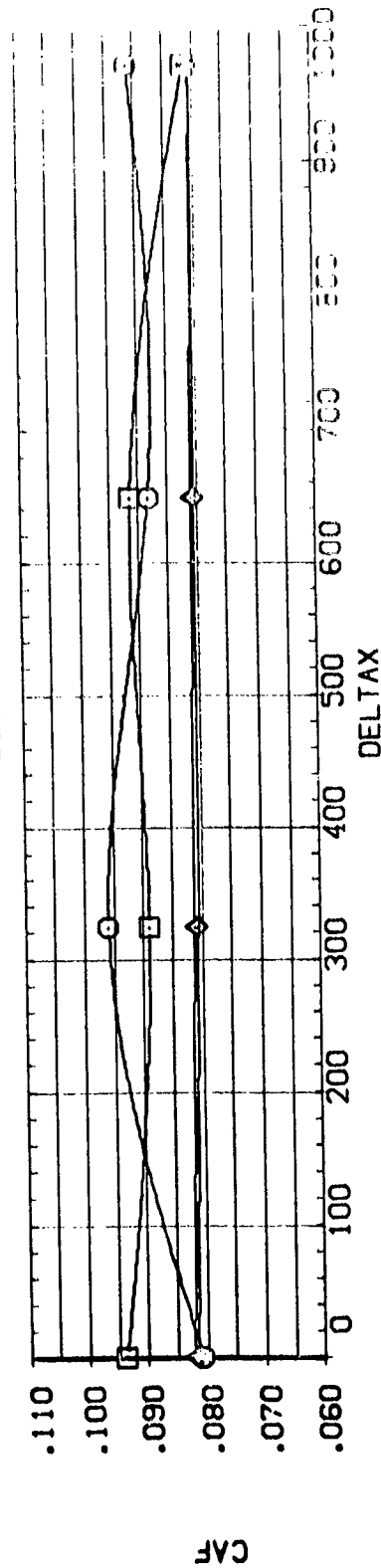
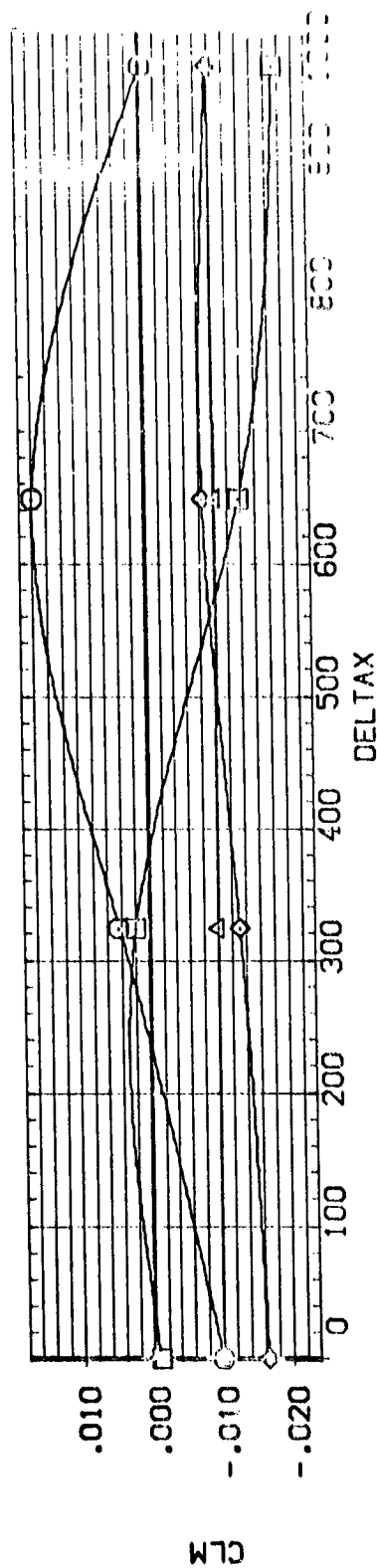
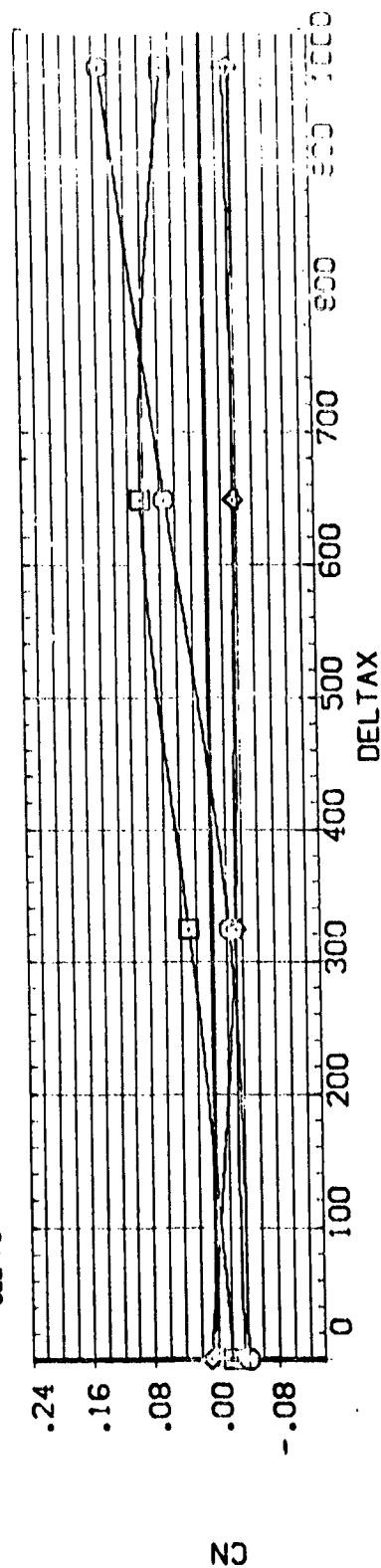
## BASIC SEPARATION DATA- ORBITER IN PRESENCE OF EXTERNAL TANK

REFERENCE INFORMATION



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# BASIC SEPARATION DATA- ORBITER IN PRESENCE OF EXTERNAL TANK

[illegible]

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|        |         | DELTA B .000       |

DELTA Z  
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486.000  
810.000







| PARAMETRIC VALUES |
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| DELTA             |
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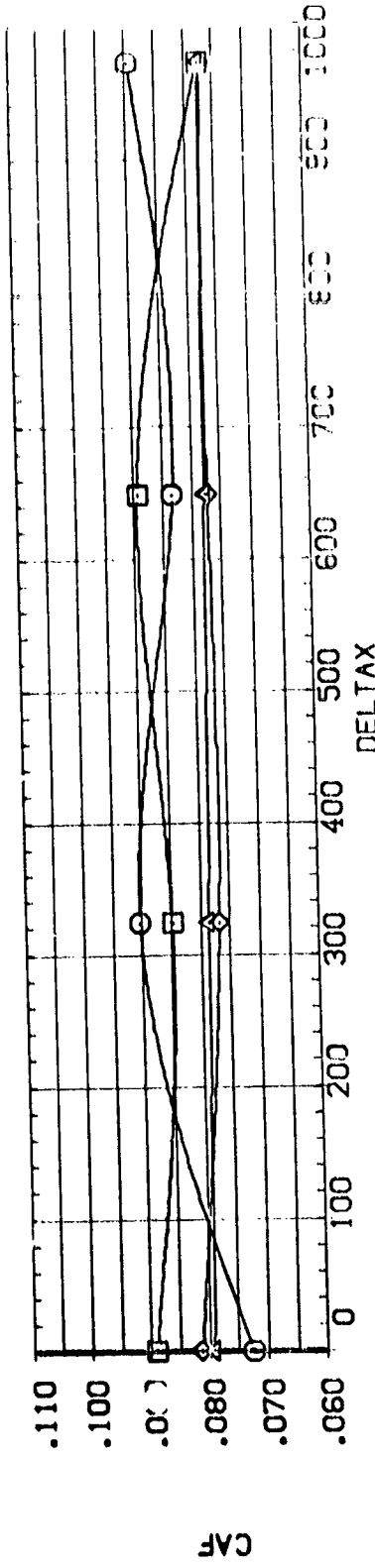
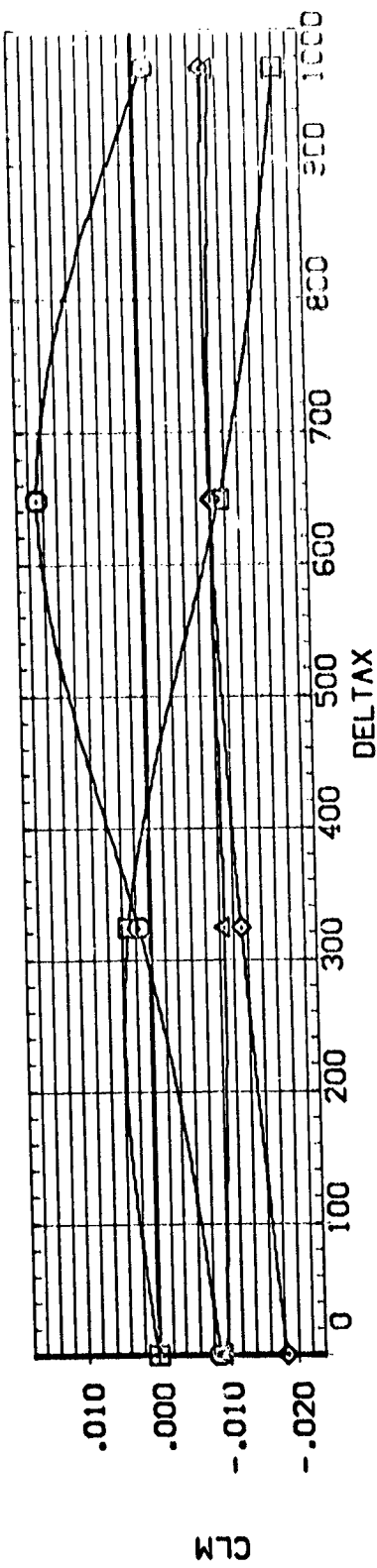
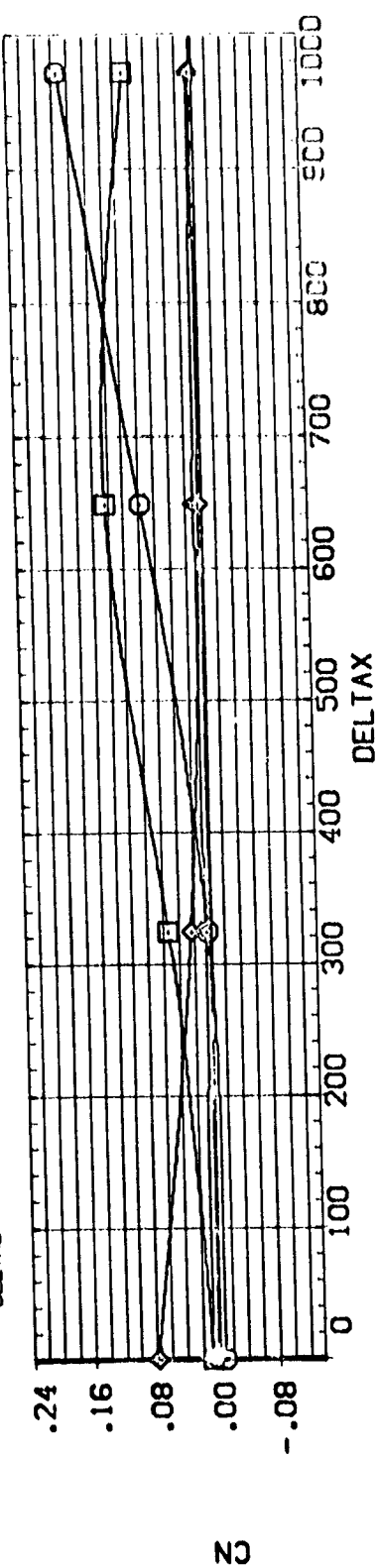
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BASIC SEPARATION DATA- ORBITER IN PRESENCE OF EXTERNAL TANK

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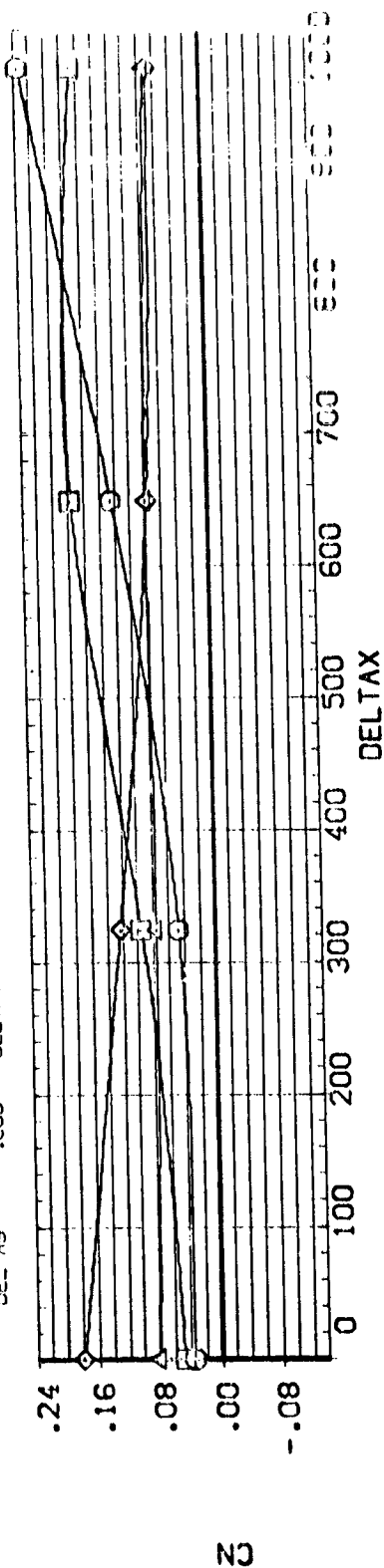
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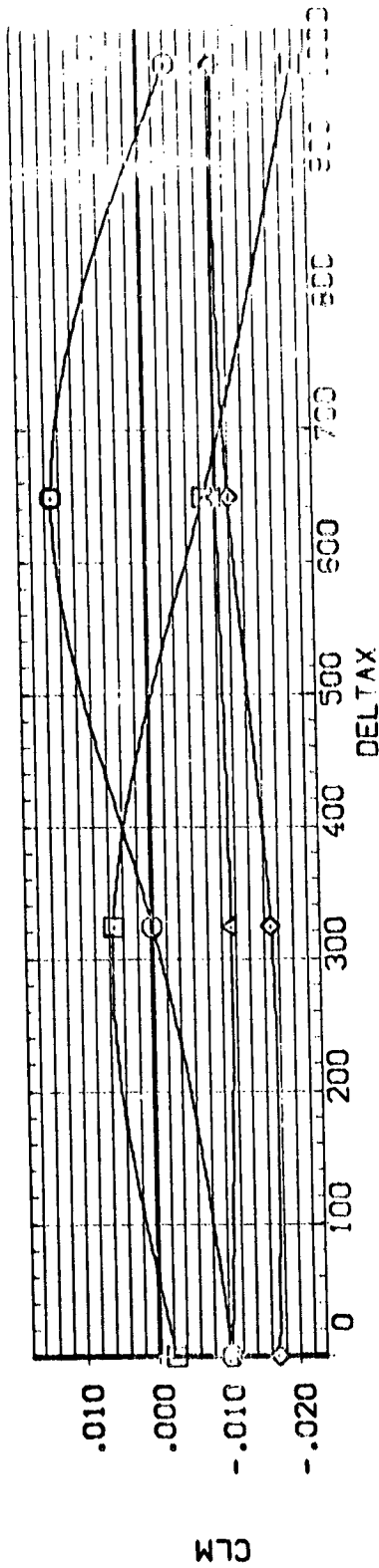
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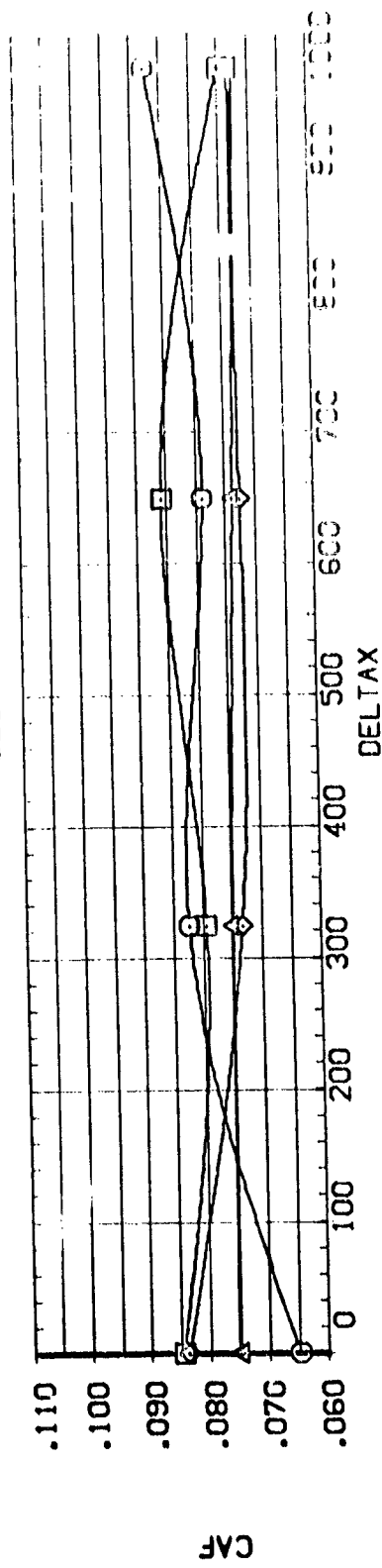
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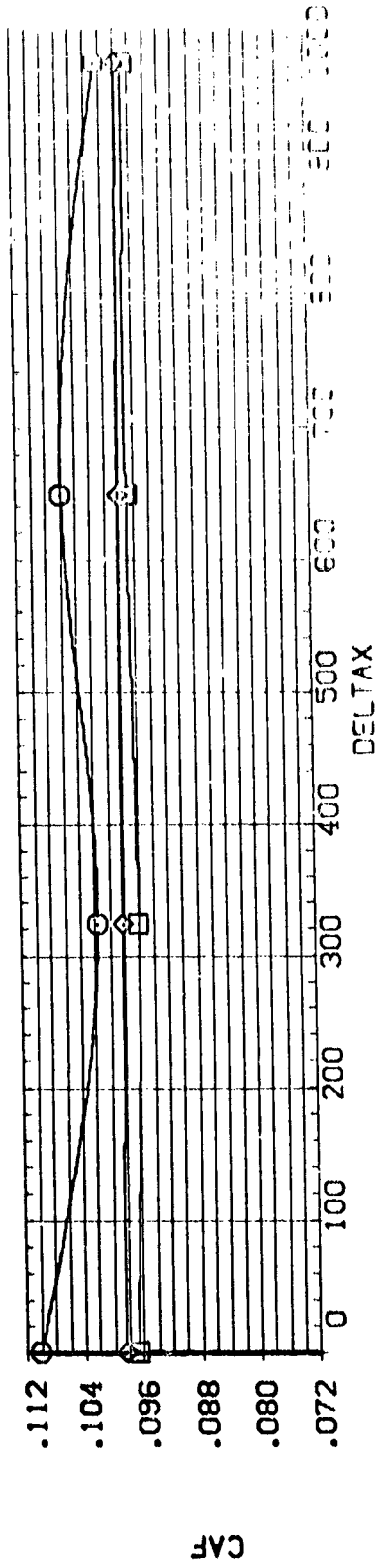
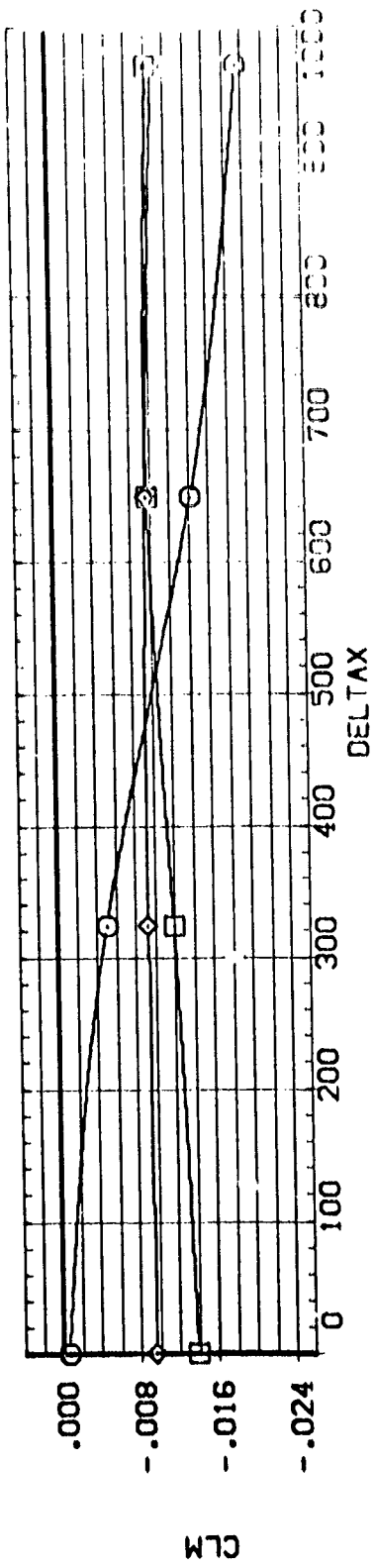
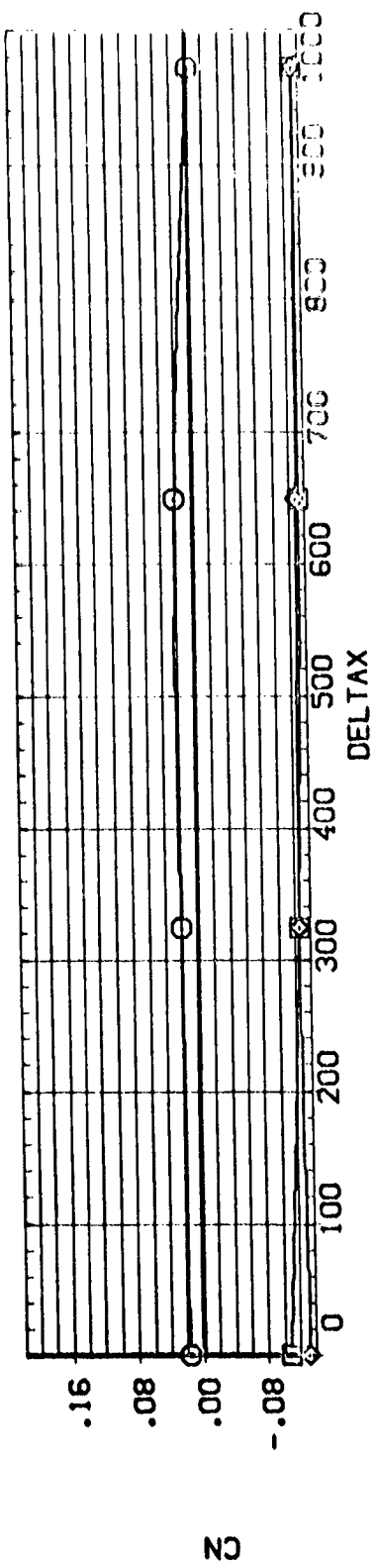
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BASIC SEPARATION DATA- ORBITER IN PRESENCE OF EXTERNAL TAY



MS71(1A6A) ORB (013) WITH TANK (T9) SEPARATING (N85005)

| PARAMETRIC VALUES |         | DATA SOURCE |         | REFERENCE INFORMATION |       |
|-------------------|---------|-------------|---------|-----------------------|-------|
| DELTA Z           | ALPHA   | .000        | DATASET | DELTA Z               | SCALE |
| 162.000           | -5.000  | .000        | N85005  | 463.000               | 1.000 |
| 486.000           | 4.960   | .000        | N85008  | 463.000               | 1.000 |
| 810.000           | .000    | .000        | N85011  | 463.000               | 1.000 |
|                   | RUDDER  | 5.000       |         | 463.000               | 1.000 |
|                   | DELTA X | .000        |         | 463.000               | 1.000 |
|                   | DELTA Y | .000        |         | 463.000               | 1.000 |



BASIC SEPARATION DATA- ORBITER IN PRESENCE OF EXTERNAL TANK



(28535)

**70845**

DELTAZ  
162.000  
486.000  
810.000

ALPHA  
MACH  
AIRLON  
RUEFLR  
DELTAB

|                   |        |
|-------------------|--------|
| PARAMETRIC VALUES |        |
| BETA              | .000   |
| ELEVTR            | 4.950  |
| RUDDER            | .000   |
| DELTA A           | 40.000 |
| DELTA Y           | .000   |

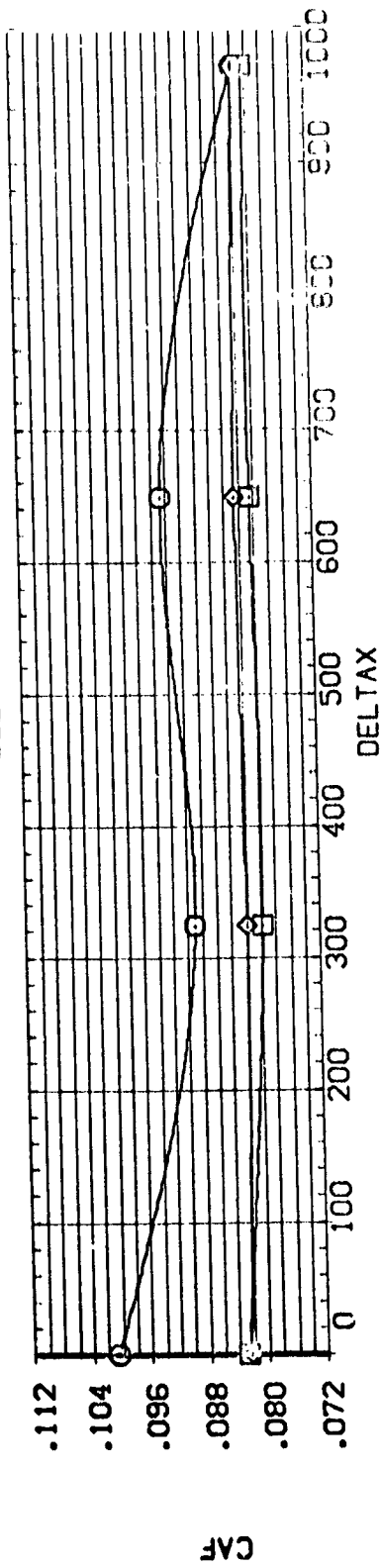
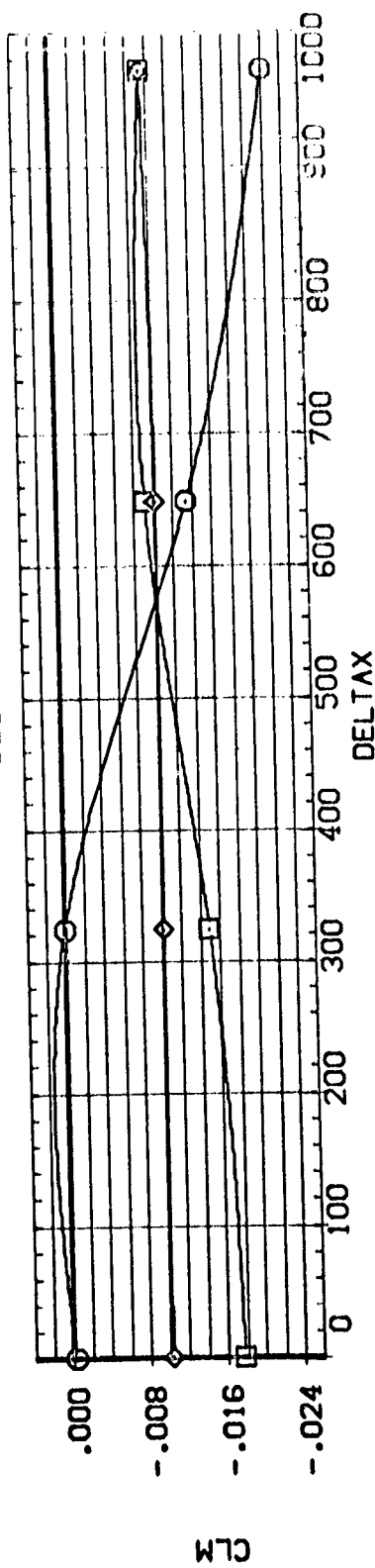
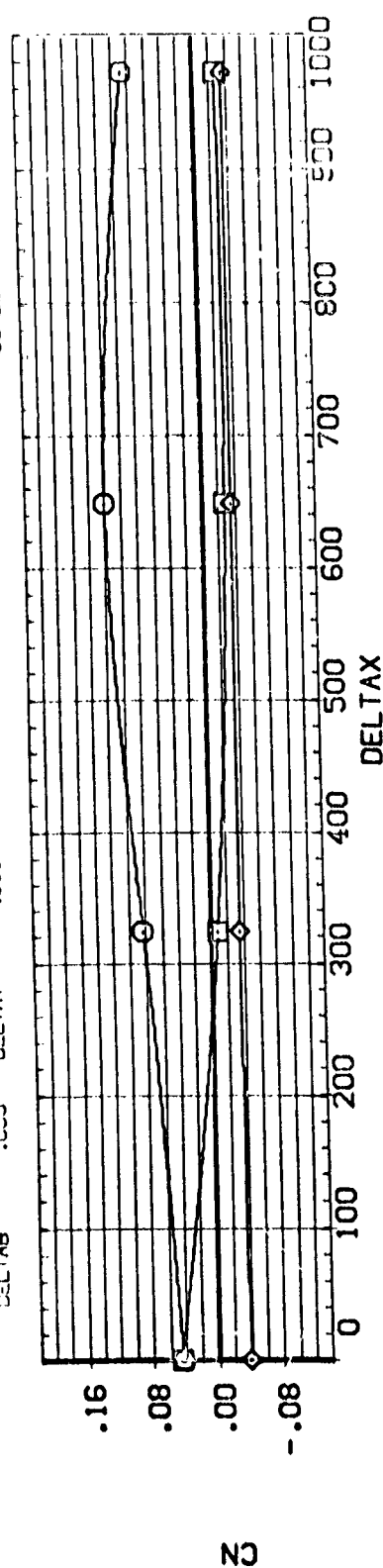
| DATA SOURCE | DELTA Z | DATASET | DELTA Z |
|-------------|---------|---------|---------|
| 162.000     | SC0505  | 162.000 | SC0505  |
| 810.000     | N95011  | 810.000 | N95011  |

DATA SOURCE

**CATASET**

27-47

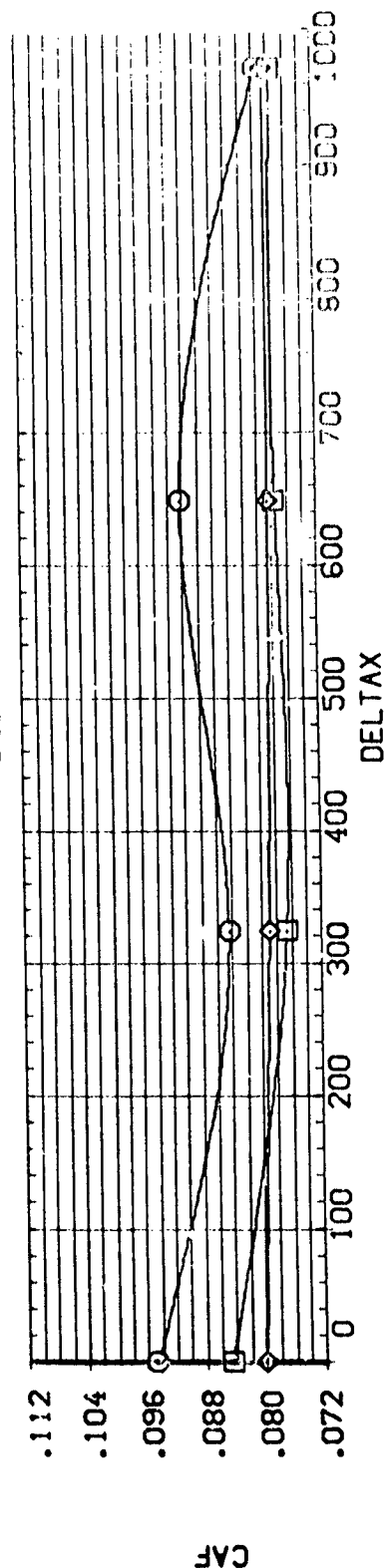
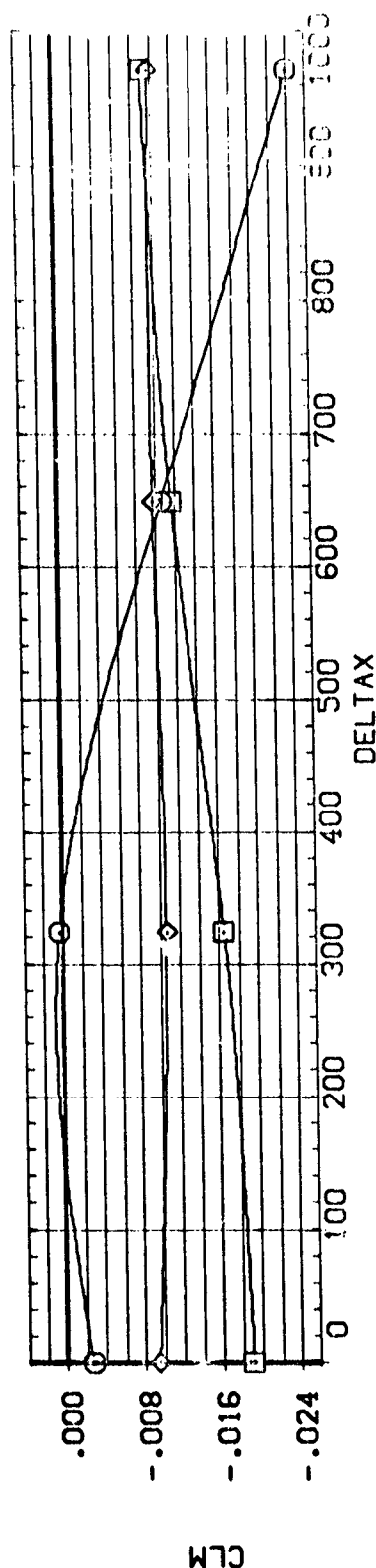
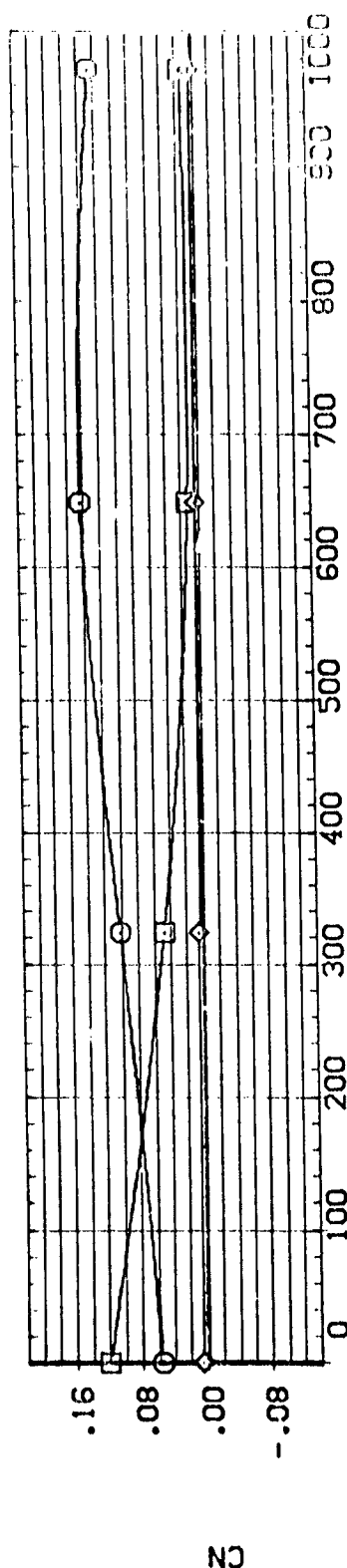
44-38861-107

[illegible]

# BASIC SEPARATION DATA- ORBITER IN PRESENCE OF EXTERNAL TANK

# M571(1A6A) ORB (013) WITH TANK (T9) SEPARATING (N85005)

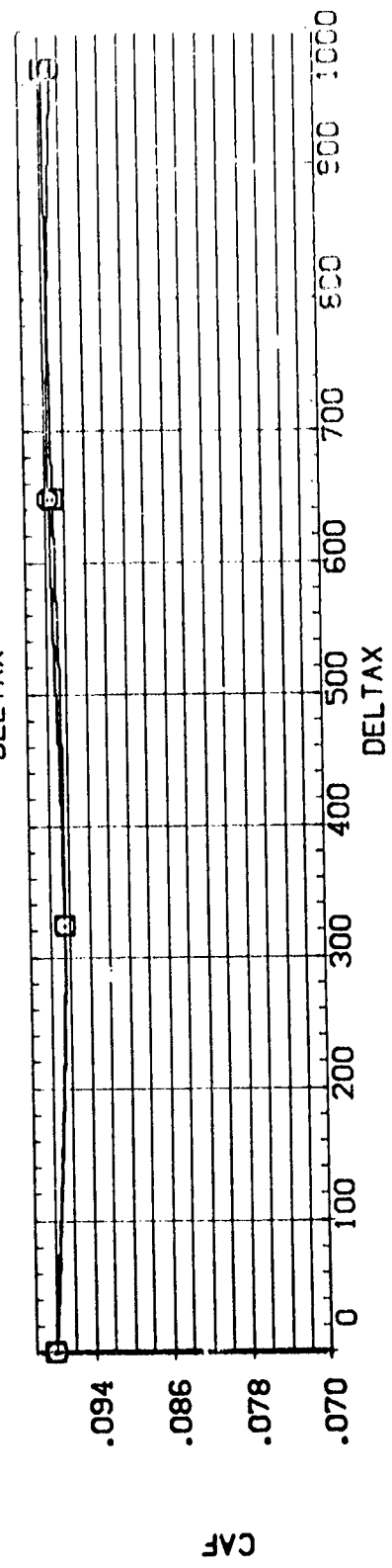
| SYMBOL | DELTA Z | PARAMETRIC VALUES | DATA SOURCE | DELTA Z         | SCALE |
|--------|---------|-------------------|-------------|-----------------|-------|
| ○      | 162.000 | ALPHA 2.000       | .000        | DELTA Z 162.000 | REF   |
| □      | 485.000 | MACH 4.960        | .000        | DELTA Z 485.000 | REF   |
| ◇      | 810.000 | AILRON .000       | .000        | DELTA Z 810.000 | REF   |
|        |         | RUDFLR 40.000     | 5.000       | DELTA Z 5.000   | REF   |
|        |         | DELTA Z .000      | .000        | DELTA Z .000    | REF   |



BASIC SEPARATION DATA- ORBITER IN PRESENCE OF EXTERNAL TANK

SYMBOL

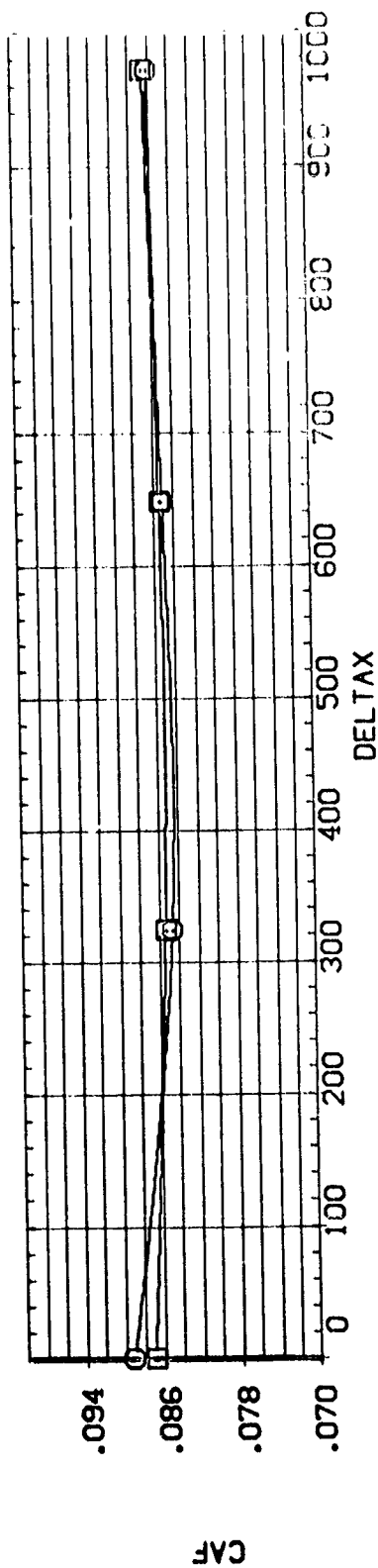
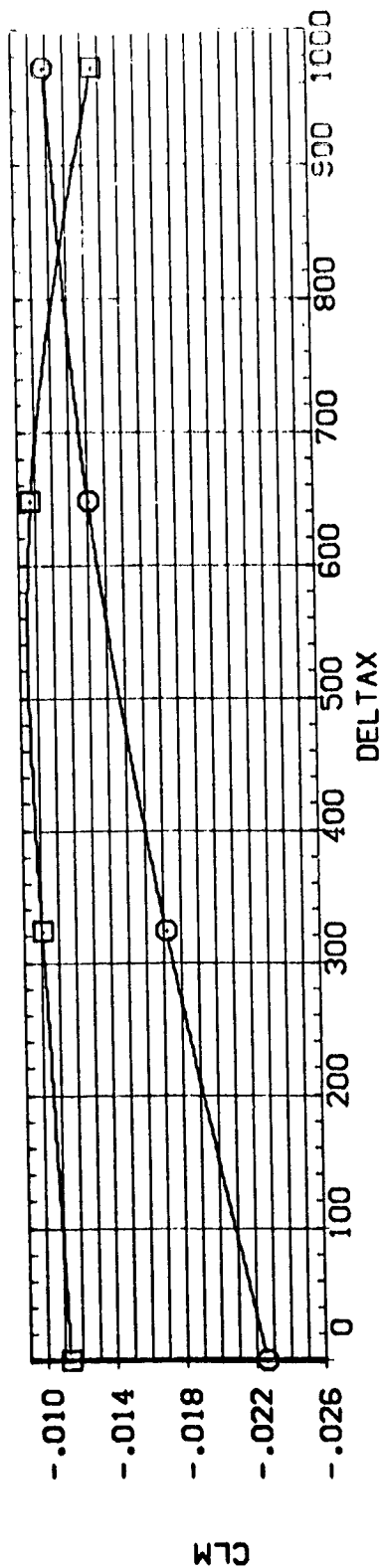
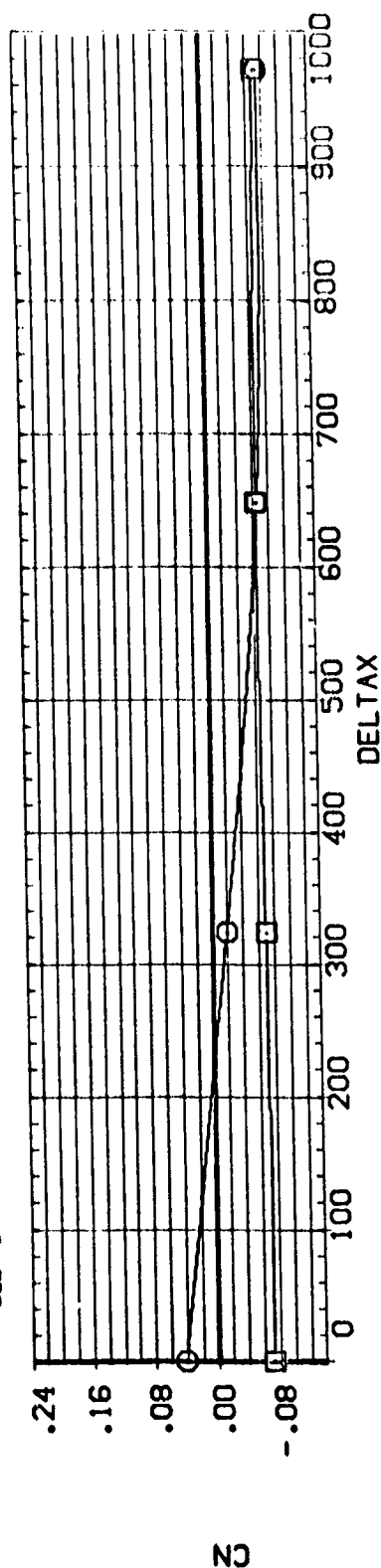
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# M571(1A6A) GRB (013) WITH TANK (T9) SEPARATING (N85009)

| SYMBOL     |  | DELTA Z | PARAMETRIC VALUES |        |         | DATA SOURCE |         | REFERENCE INFORMATION |       |         |
|------------|--|---------|-------------------|--------|---------|-------------|---------|-----------------------|-------|---------|
| O<br><br>□ |  | 485.000 | ALPHA             | -2.000 | BETA    | .000        | DATASET | DELTA Z               | SREF  | SC. FT. |
|            |  | 810.000 | MACH              | 4.960  | ELEVTR  | .000        | N85009  | 485.000               | LREF  | IN.     |
|            |  |         | AIRLON            | .000   | RUDDER  | .000        |         | 810.000               | BREF  | IN.     |
|            |  |         | RUDEFLR           | 40.000 | DELTA Z | 10.000      |         |                       | YREF  | IN.     |
|            |  |         | DELTA Z           | .000   | DELTA Z | .000        |         |                       | ZREF  | IN.     |
|            |  |         | DELTA Z           | .000   | DELTA Z | .000        |         |                       | SCALE | IN.     |
|            |  |         |                   |        |         |             |         |                       |       | IN.     |
|            |  |         |                   |        |         |             |         |                       |       | IN.     |
|            |  |         |                   |        |         |             |         |                       |       | IN.     |
|            |  |         |                   |        |         |             |         |                       |       | IN.     |
|            |  |         |                   |        |         |             |         |                       |       | IN.     |
|            |  |         |                   |        |         |             |         |                       |       | IN.     |



BASIC SEPARATION DATA- ORBITER IN PRESENCE OF EXTERNAL TANK

(60658N)

SYMBOL ☐ ☐

|         |        |
|---------|--------|
| DELTA Z | ALPHA  |
| 486.000 | MACH   |
| 810.000 | AILRON |
|         | RJDFLR |
|         | DELTAB |

|                   |
|-------------------|
| PARAMETRIC VALUES |
| BETA              |
| .000              |
| ELEVTR            |
| 4.960             |
| RUDDER            |
| .000              |
| DELTAA            |
| 40.000            |
| DELTAY            |
| .000              |

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.000 DATASET
.000 N85009
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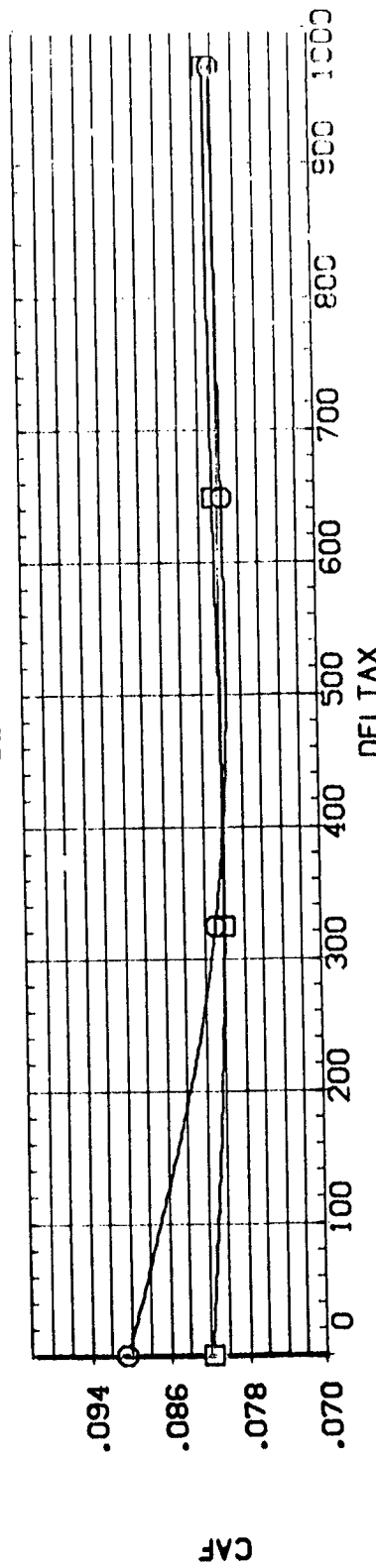
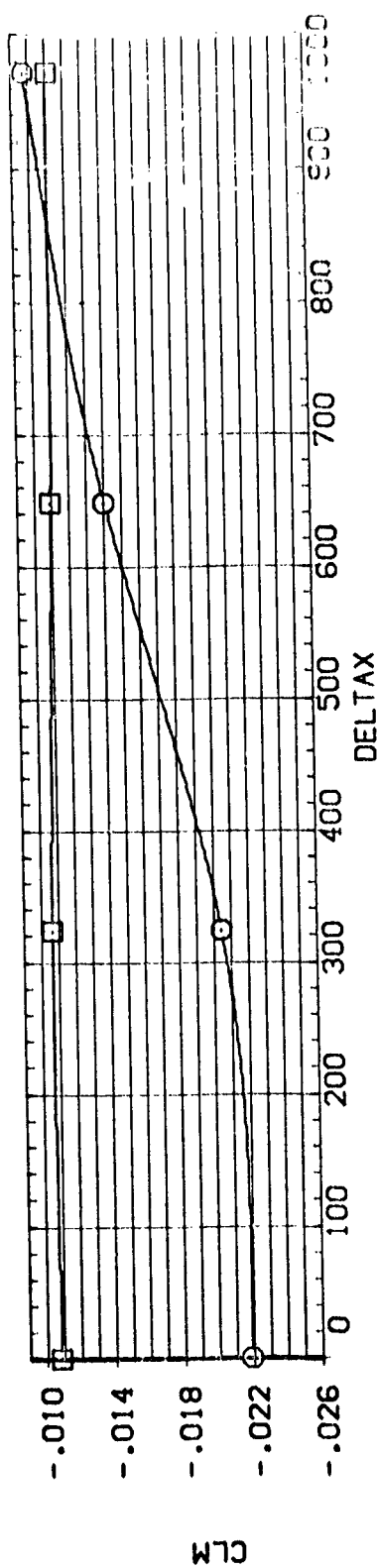
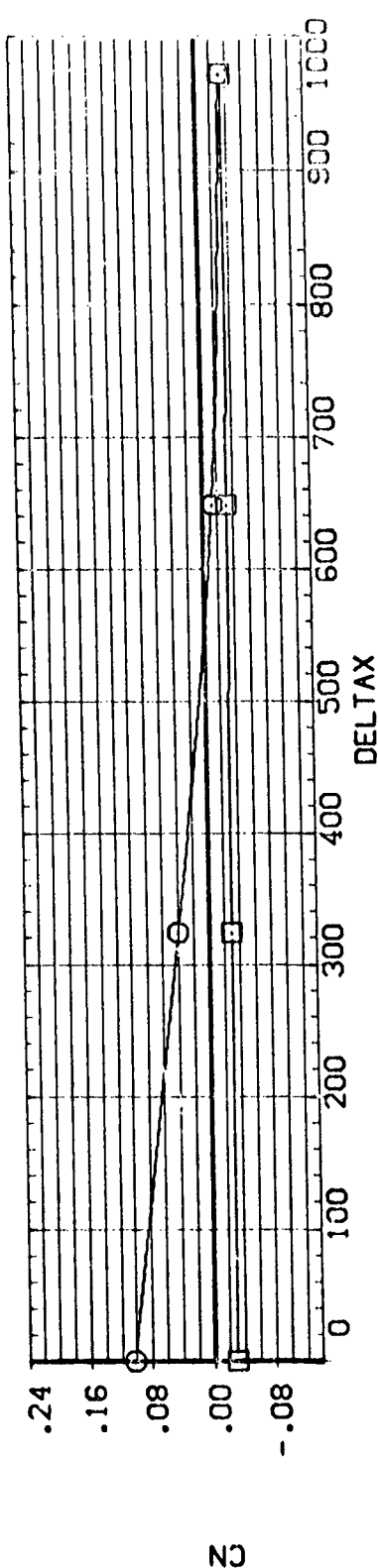
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DATA SOURCE  
DELTAZ  
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DELTAZ  
810.000

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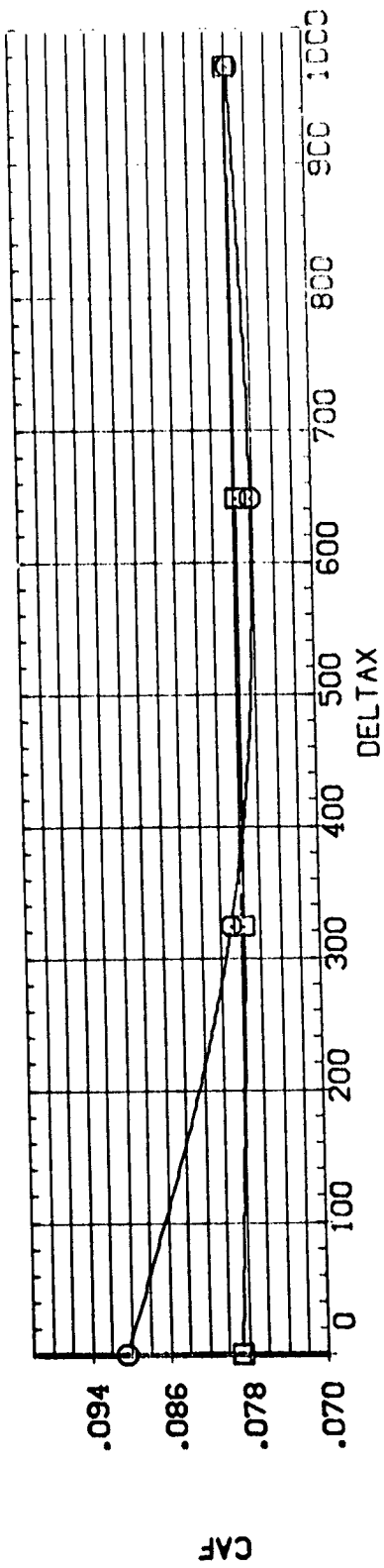
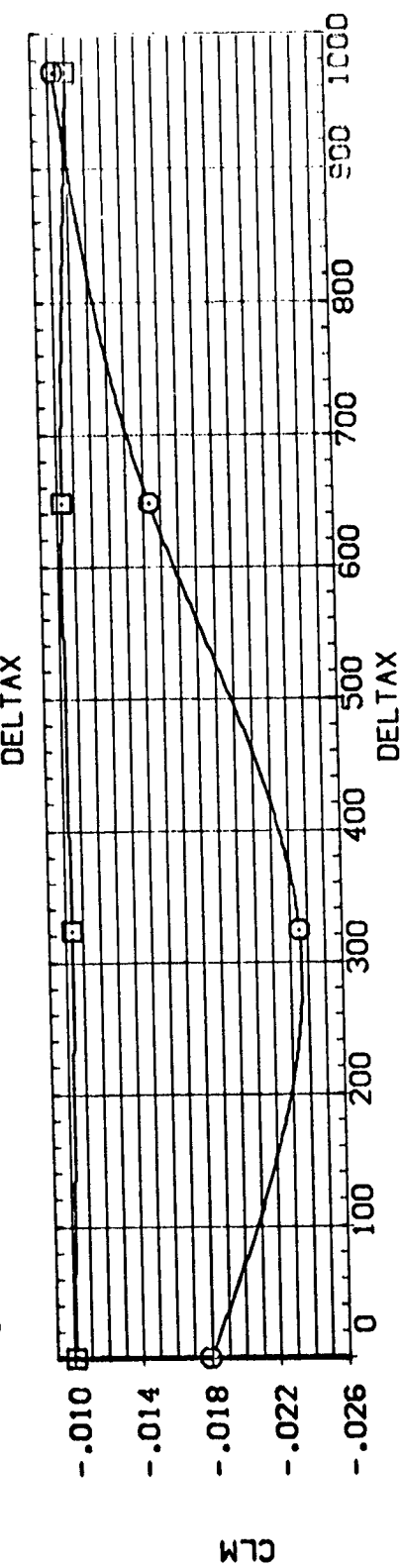
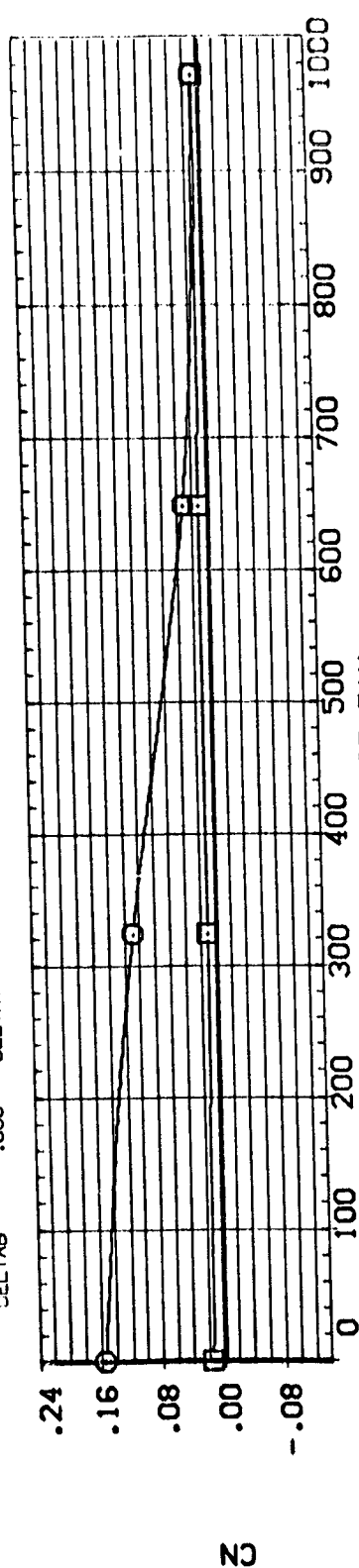
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# BASIC SEPARATION DATA- ORBITER IN PRESENCE OF EXTERNAL TANK

# M571(1A6A) ORB (013) WITH TANK (T9) SEPARATING (N85009)

| PARAMETRIC VALUES |         | DATA SOURCE |         | REFERENCE INFORMATION |           |
|-------------------|---------|-------------|---------|-----------------------|-----------|
| DELTAZ            | 486.000 | DELTAZ      | 486.000 | SREF                  | 2650.0000 |
| DELTAZ            | 810.000 | DELTAZ      | 810.000 | LRZF                  | 1328.3000 |
| ALPHA             | 2.000   | DELTAZ      | 486.000 | BREF                  | 1328.3000 |
| MACH              | 4.950   | DELTAZ      | 810.000 | VMRP                  | 657.7000  |
| AILRON            | .000    | DELTAZ      | 486.000 | ZMRP                  | .0000     |
| RUDFLR            | 40.000  | DELTAZ      | 810.000 | SCALE                 | .0040     |
| DELTAZ            | .000    | DELTAZ      | 486.000 |                       |           |
| DELTAZ            | .000    | DELTAZ      | 810.000 |                       |           |



BASIC SEPARATION DATA- ORBITER IN PRESENCE OF EXTERNAL TANK

# M571(1A6A) ORB (013) WITH TANK (T9) SEPARATING (N85009)

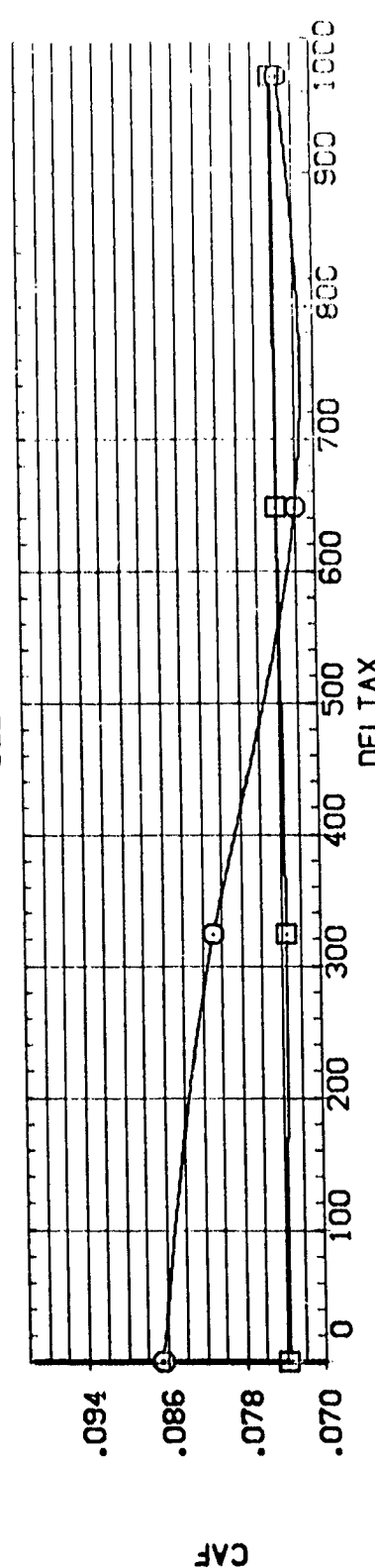
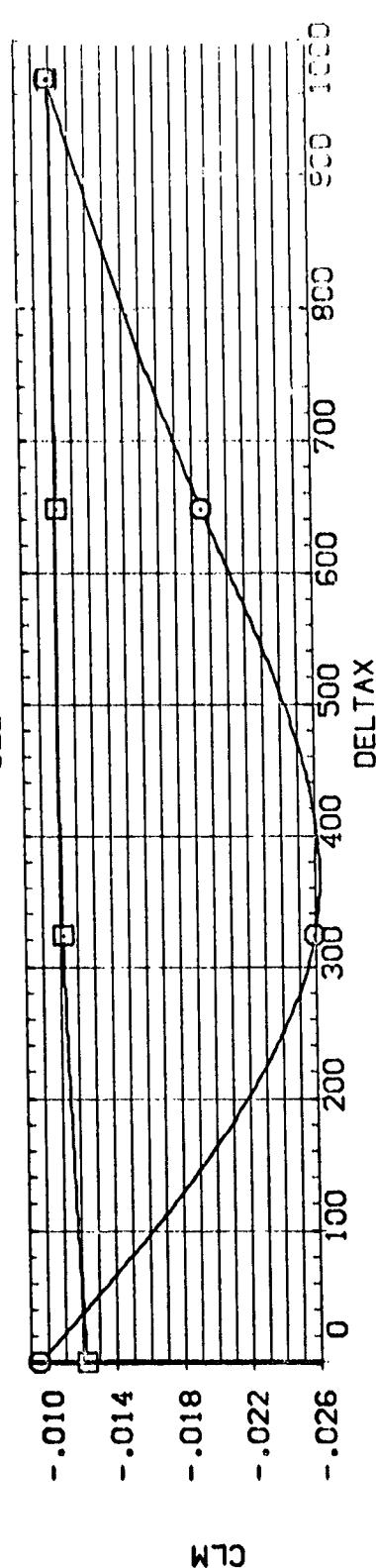
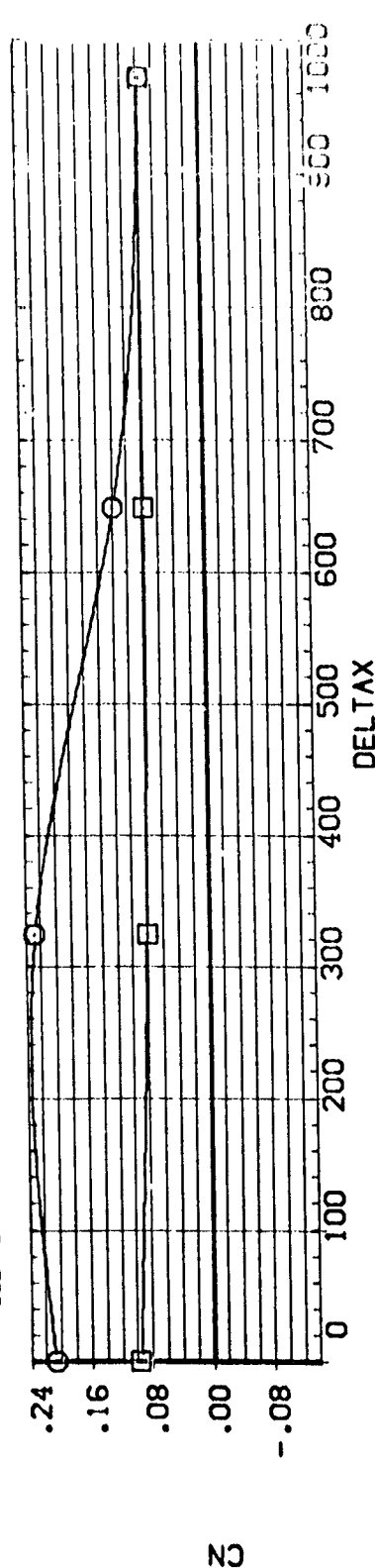
SYMBOL  
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DELTAZ 486.000  
 810.000

PARAMETRIC VALUES  
 ALPHA 5.000  
 MACH 4.950  
 AILRON .000  
 RUDDER .000  
 DELTAA 10.000  
 DELTAY .000

DATA SOURCE  
 DELTAZ 486.000  
 DATASET N85009  
 DELTAX 810.000

REFERENCE INFORMATION  
 SREF 2880.000  
 LREF 1328.000  
 BREF 1028.000  
 XREF 697.000  
 YREF 1000.000  
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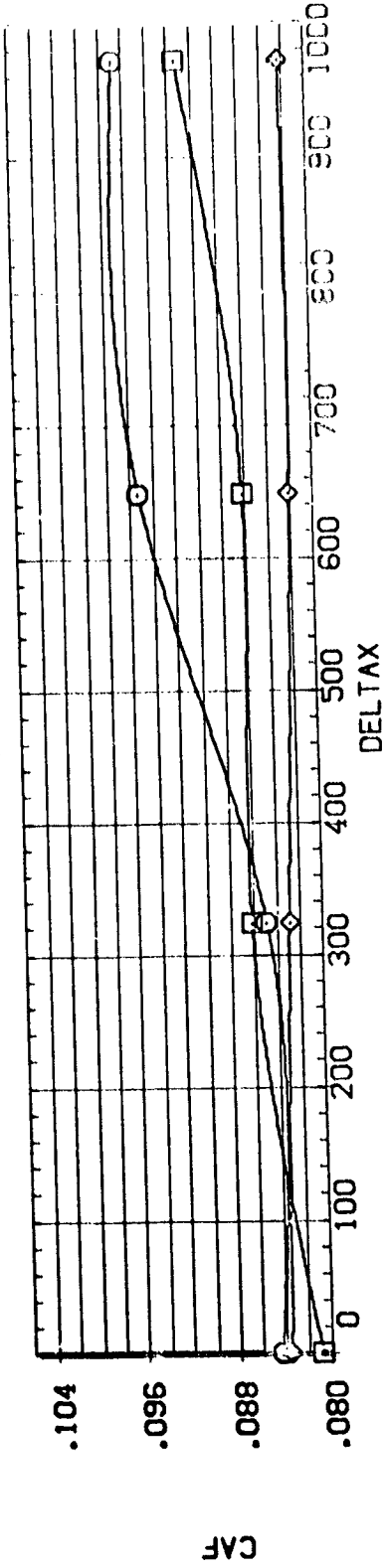
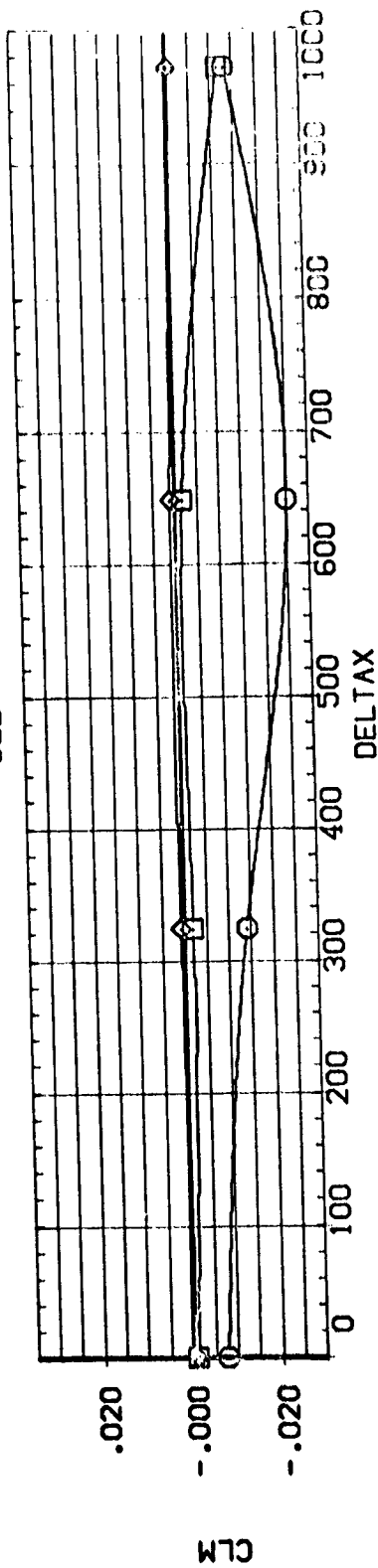
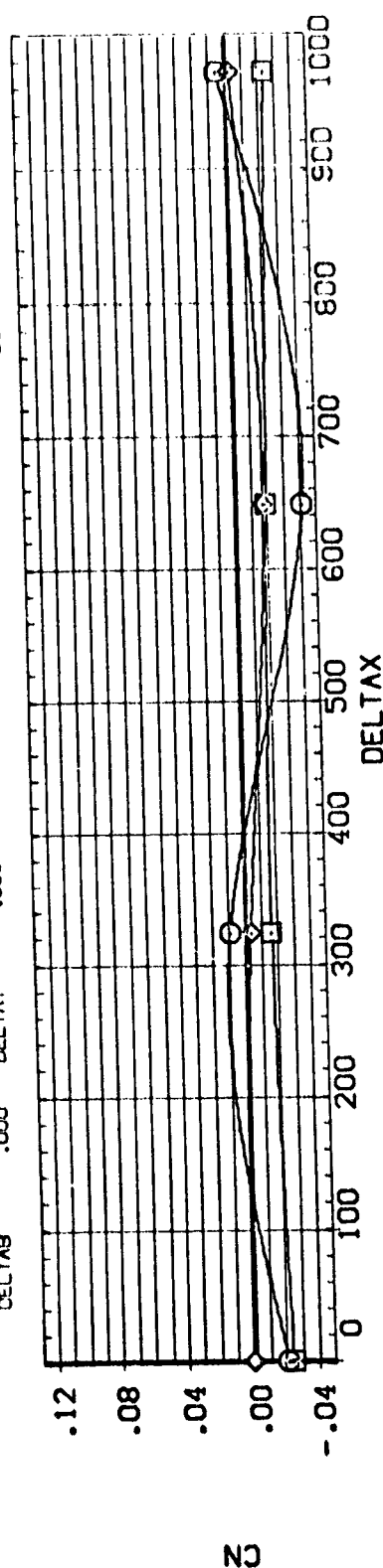


BASIC SEPARATION DATA- ORBITER IN PRESENCE OF EXTERNAL TANK



# M571(IAG) TANK(T9)SEPARATING FROM ORBITER(013) (N85T01)

| SYMBOL | DELTAZ  | PARAMETRIC VALUES | DATA SOURCE | REFERENCE INFORMATION |
|--------|---------|-------------------|-------------|-----------------------|
| ○      | .000    | ALPHA             | DELTAZ      | SREF                  |
| □      | 162.000 | BETA              | DELTAZ      | LREF                  |
| ◇      | 486.000 | ELEVTR            | DELTAZ      | BREF                  |
|        |         | RUDDER            | DELTAZ      | XREF                  |
|        |         | DELTAZ            | DELTAZ      | YREF                  |
|        |         | DELTAZ            | DELTAZ      | ZREF                  |
|        |         | DELTAZ            | DELTAZ      | SCALE                 |
|        |         |                   |             | SOFT                  |



BASIC SEPARATION DATA- EXTERNAL TANK IN PRESENCE OF ORBITER

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(535) (536) (537) (538) (539) (540)

(541) (542) (543) (544) (545) (546)

(547) (548) (549) (550) (551) (552)

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(709) (710) (711) (712) (713) (714)

(715) (716) (717) (718) (719) (720)

(721) (722) (723) (724) (725) (726)

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(733) (734) (735) (736) (737) (738)

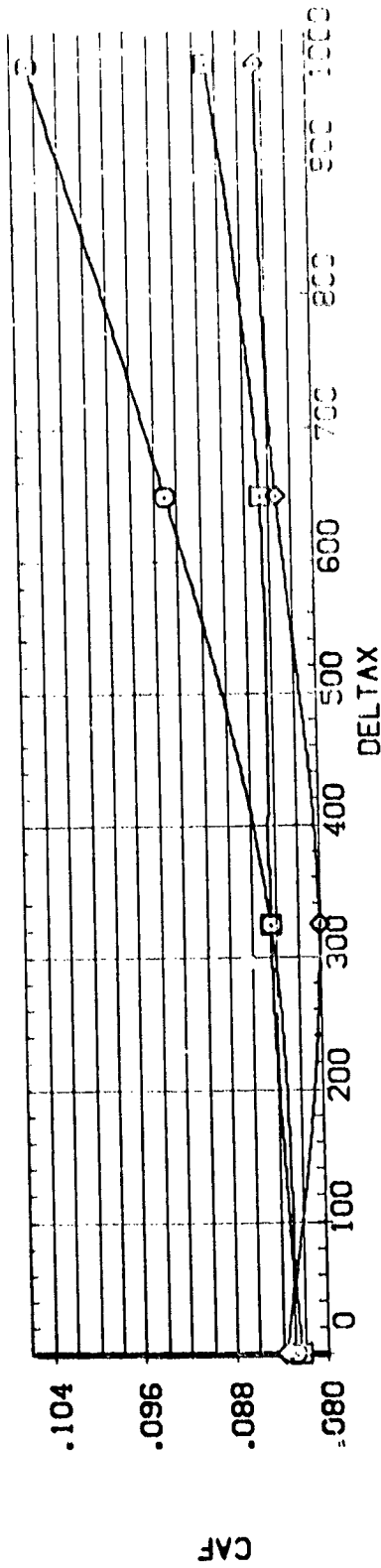
(739) (740) (741) (742) (743) (744)

(745) (746) (747) (748) (749) (750)

(751) (752) (753) (754) (755) (756)

(757) (758) (759) (760) (761) (762)

(763) (764) (7



[illegible]

DELTA Z  
162.000  
486.000

ALPHA  
MACH  
A ILRON  
RUEFLR  
DEL TAB

|                   |        |
|-------------------|--------|
| PARAMETRIC VALUES | BETA   |
| .000              | ELEVTR |
| 4.950             | RUDDER |
| .000              | DELTA  |
| 40.000            | DELTAY |
| .000              |        |

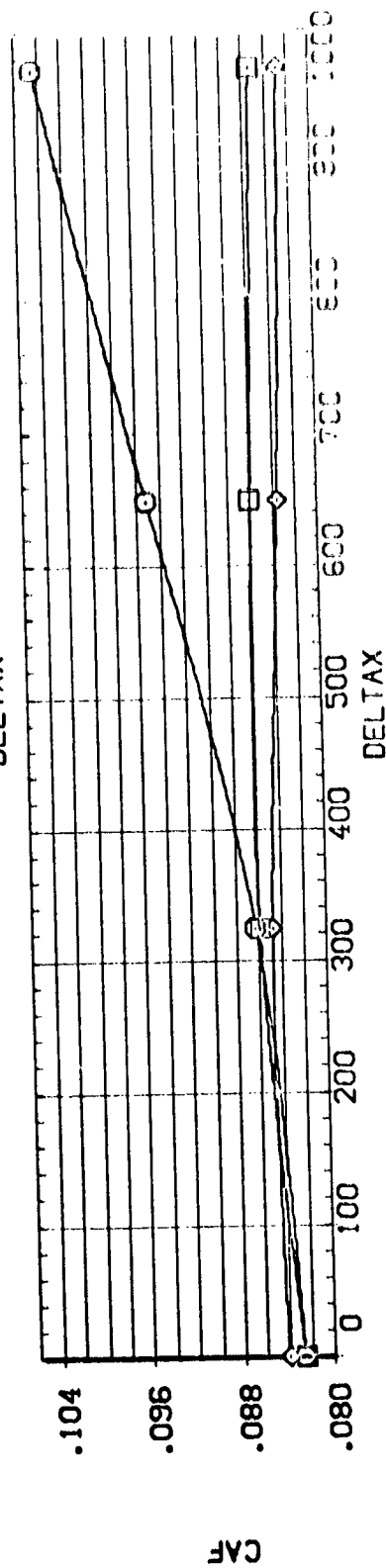
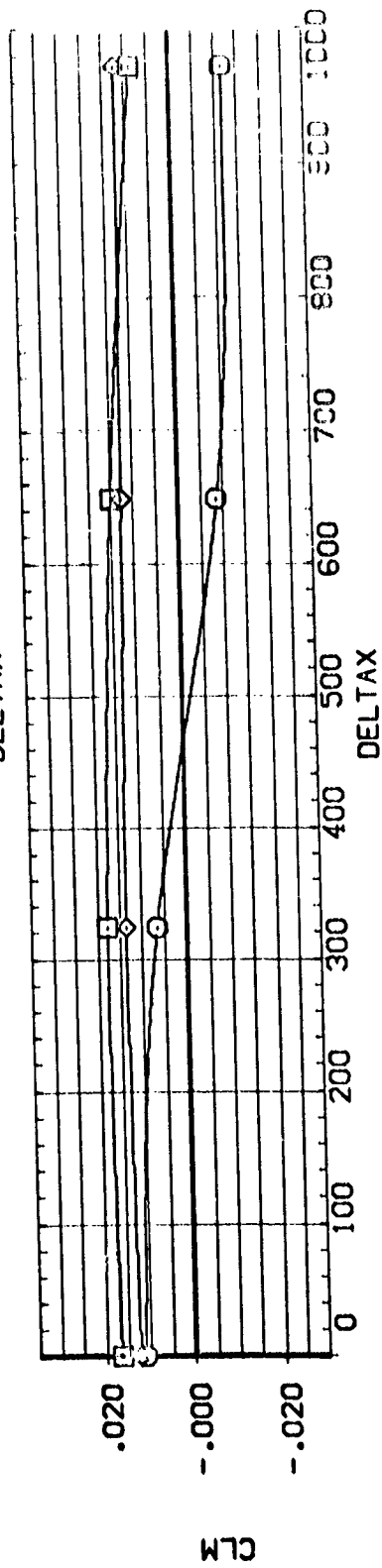
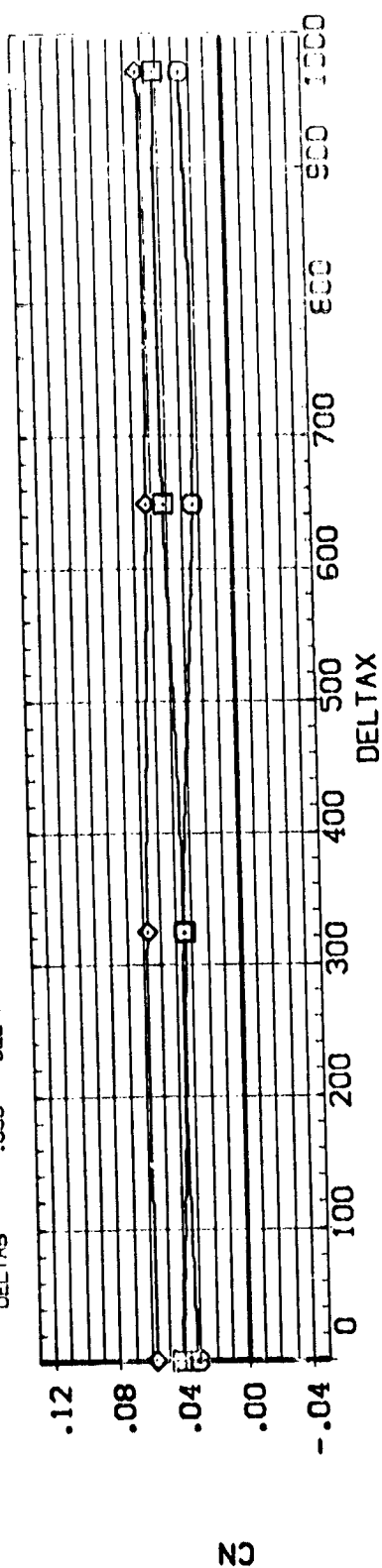
DATA SOURCE  
ZVL TAZ  
000.  
000.

## CATASET

DELTA Z  
152.000

SECRET

(b) (7)(C), (D)



DELTAZ  
000.  
162.000  
496.000

| PARAMETRIC VALUES |        |
|-------------------|--------|
| BETA              | 2.000  |
| ELEVTR            | 4.960  |
| ROOGR             | .000   |
| DELTAA            | 40.000 |
| DELTAV            | .000   |

0-1A SUB OFF

493. 667  
ZV-730  
G-1A S-1

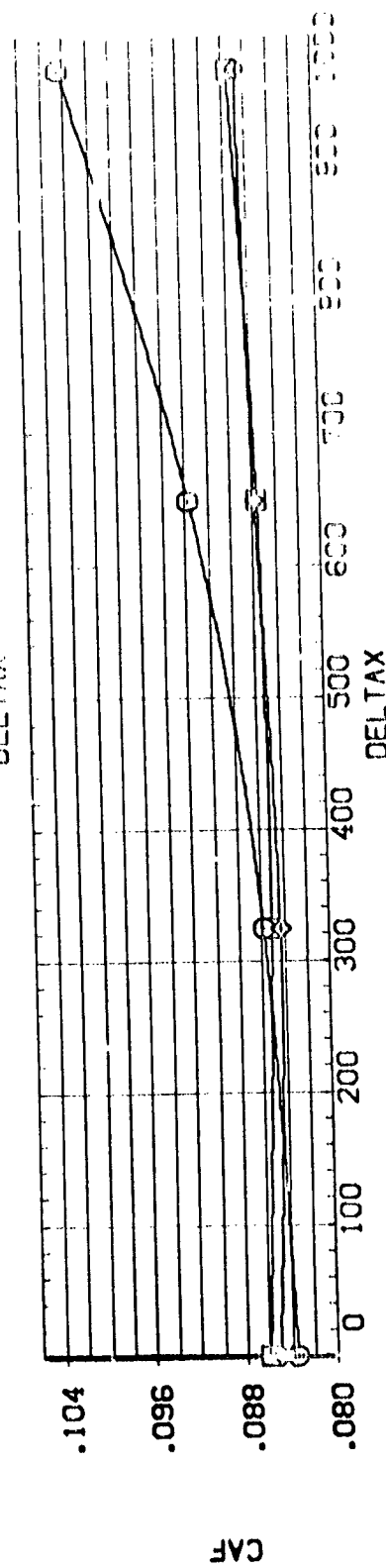
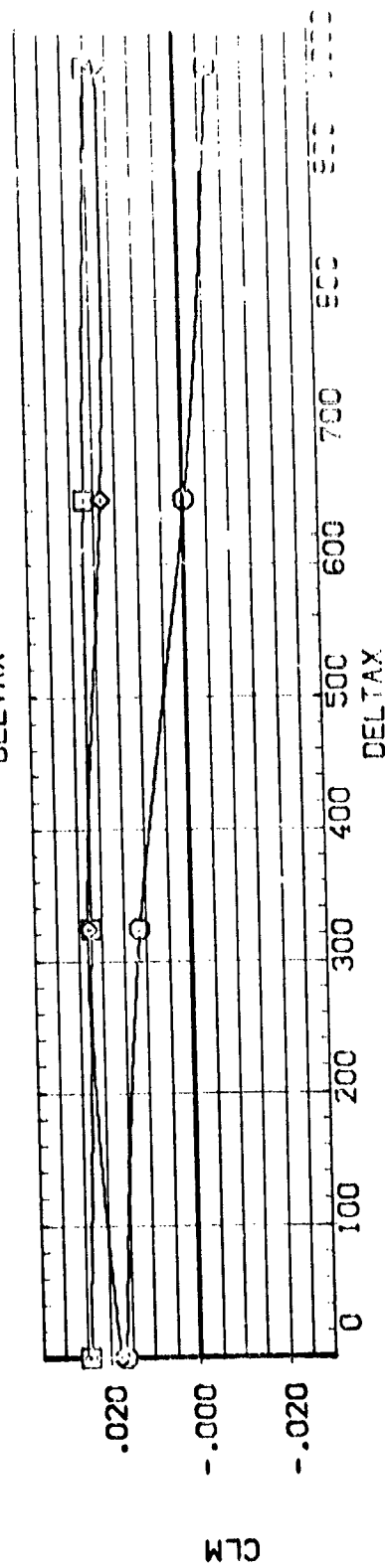
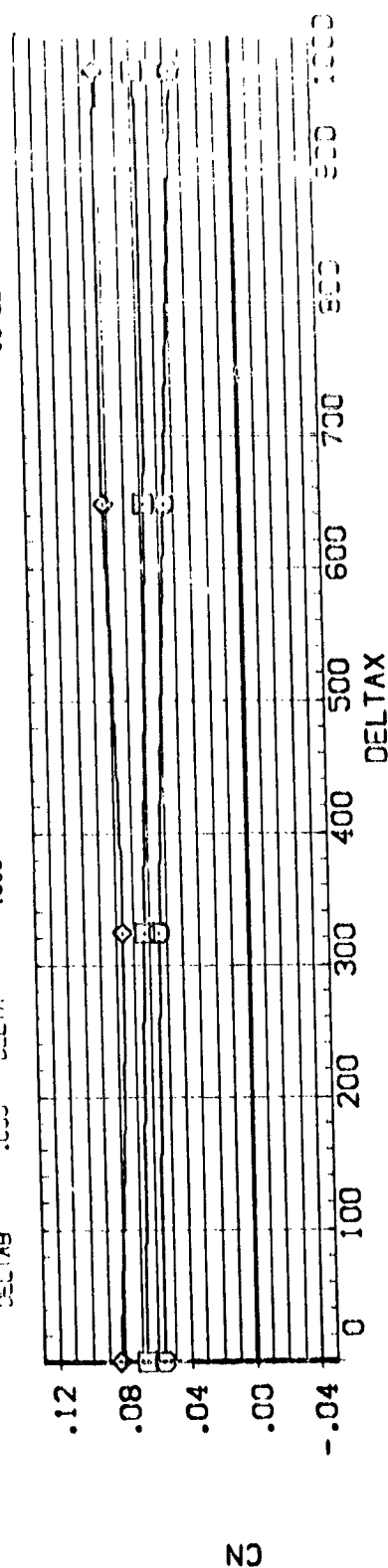
15

20-75

44

[illegible]

6500



BASIC SEPARATION DATA- EXTERNAL TANK IN PRESENCE OF GREATER

M571C1A6A3 TANKCT9JSEPARATING FROM CRBITER0013) (N95T000

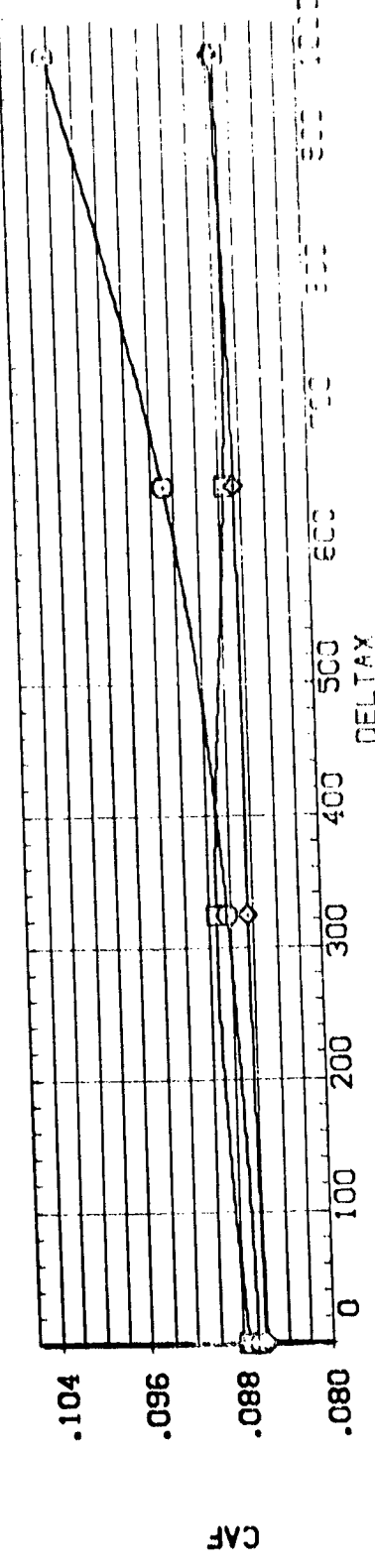
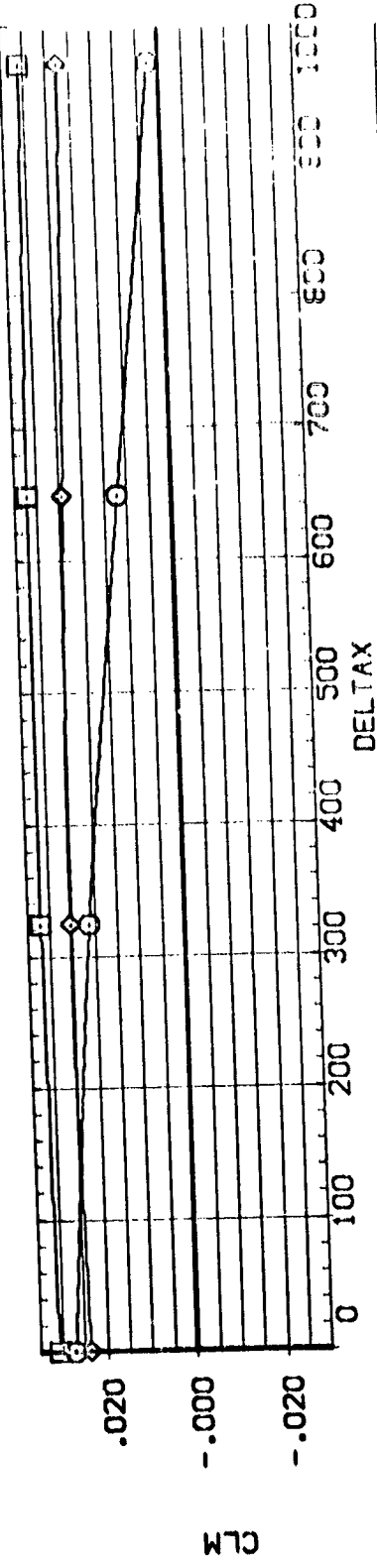
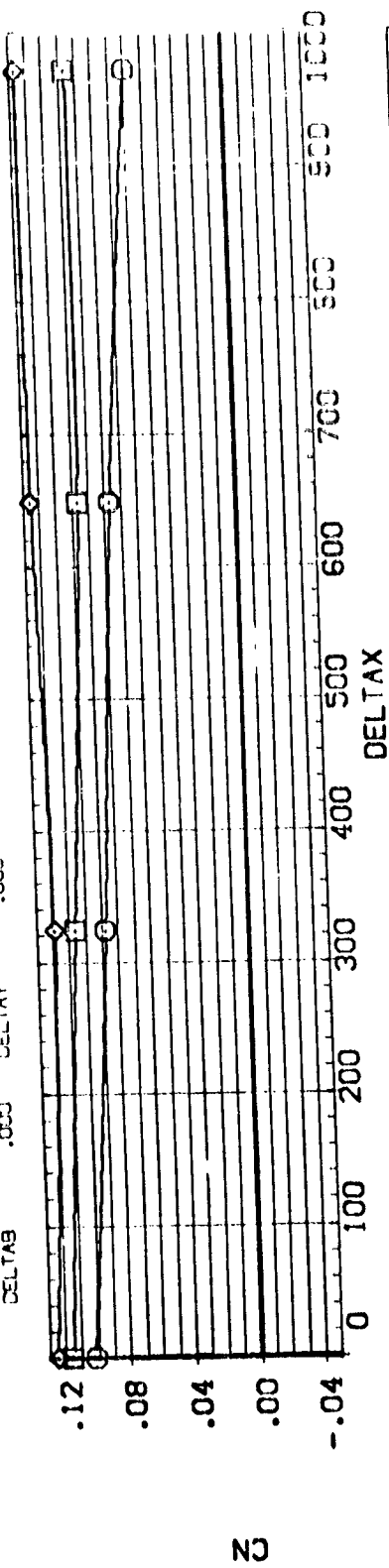
[illegible]

| DATA SOURCE | DATASET | DELTAZ  | STRT | END  |
|-------------|---------|---------|------|------|
| DELTAZ      | NSST03  | 162.000 | 1988 | 1990 |
| 486.000     |         |         | 1990 | 1993 |

| PARAMETRIC VALUES | DATASET    |
|-------------------|------------|
| BETA              | .000 N95Q1 |
| ELEVTR            | .000 N95Q6 |
| RJDDER            | .000       |
| DELTA             | -5.000     |
| DELTA             | .000       |

|         |        |
|---------|--------|
| DELTAZ  | ALPHA  |
| .000    | MACH   |
| 162.000 | AIRLON |
| 496.000 | RJDELR |

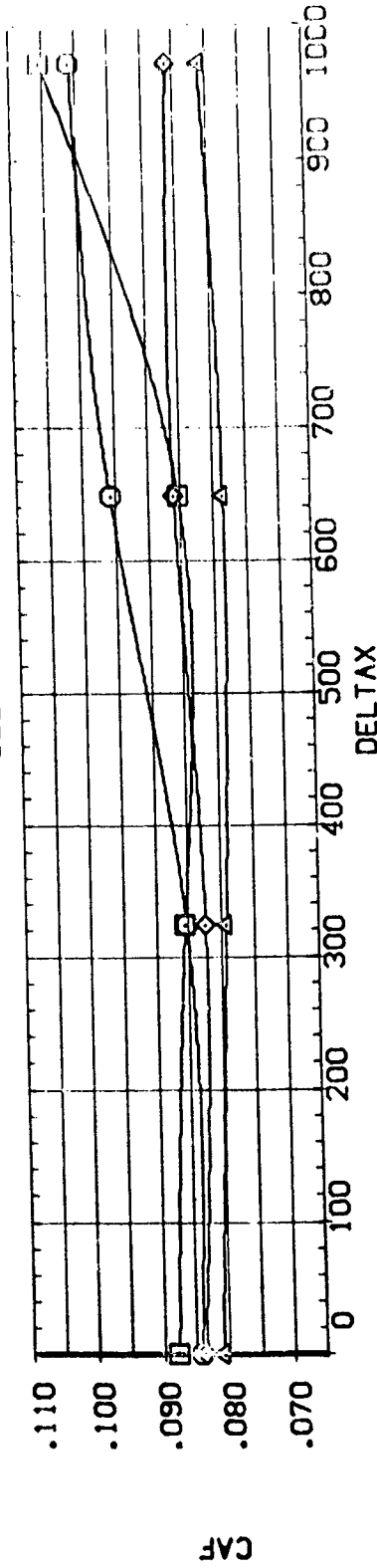
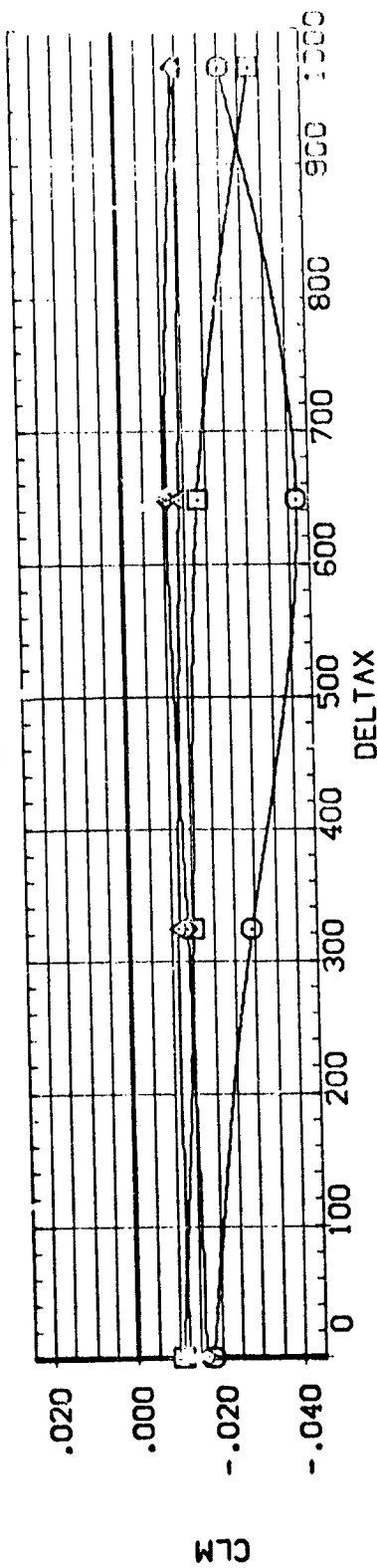
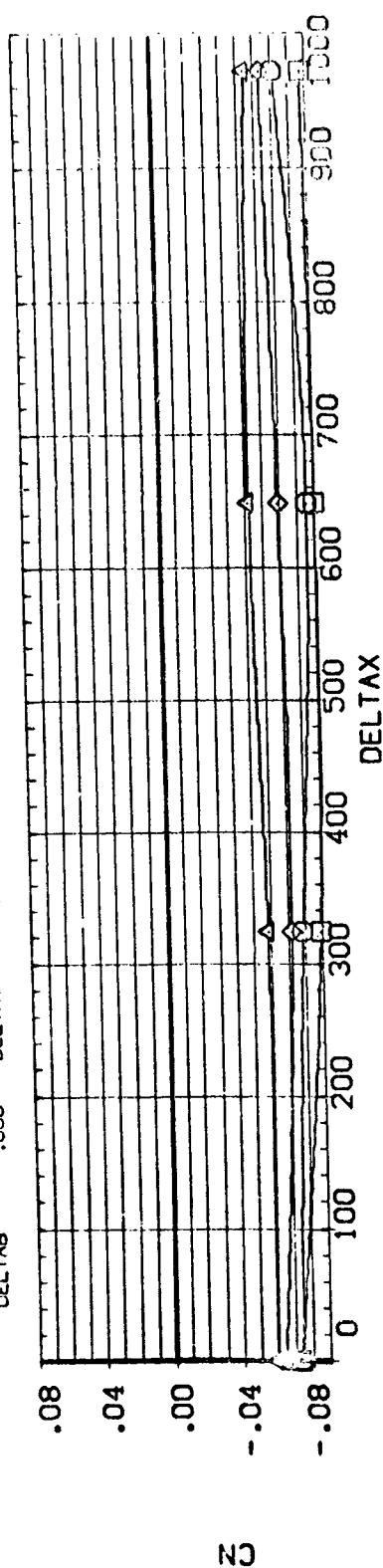
SYMBOLS



BASIC SEPARATION DATA- EXTERNAL TANK IN PRESENCE OF CURRENT

# N571(1A6A) TANK(T9)SEPARATING FROM ORBITER(013) (N85T02)

| SYMBOL |         | PARAMETRIC VALUES |        | DATA SOURCE |        | REFERENCE INFORMATION |           |
|--------|---------|-------------------|--------|-------------|--------|-----------------------|-----------|
| ○      | DELTAZ  | ALPHA             | BETA   | DELTAZ      | DELTAZ | SREF                  | 2600.0000 |
| □      | 162.000 | MACH              | ELEVTR | .000        | N85T02 | LREF                  | 1328.3000 |
| ◇      | 486.000 | AILRON            | RJODER | .000        | N85T07 | BREF                  | 1328.3000 |
| △      | 810.000 | RJDFLR            | DELTA  | .000        | N85T10 | XREF                  | 929.0000  |
|        |         | DELTA             | DELTA  | .000        | SCALE  | YREF                  | 1000.0000 |
|        |         |                   |        |             |        | ZREF                  | 1000.0000 |
|        |         |                   |        |             |        | SCALE                 | 1000.0000 |



BASIC SEPARATION DATA- EXTERNAL TANK IN PRESENCE OF ORBITER

**SYMBOL**

DELTA Z  
162.000  
86.000  
810.000

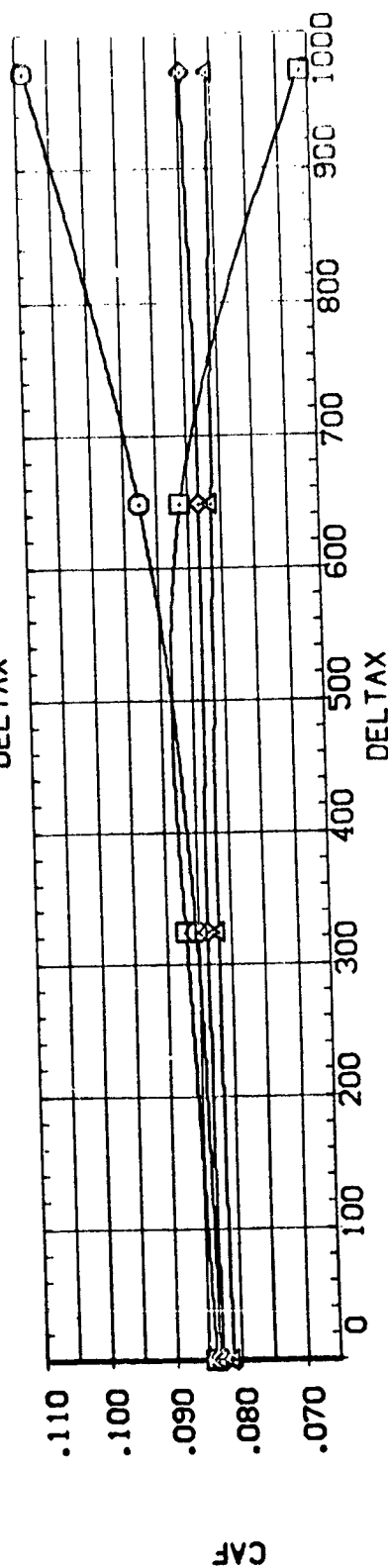
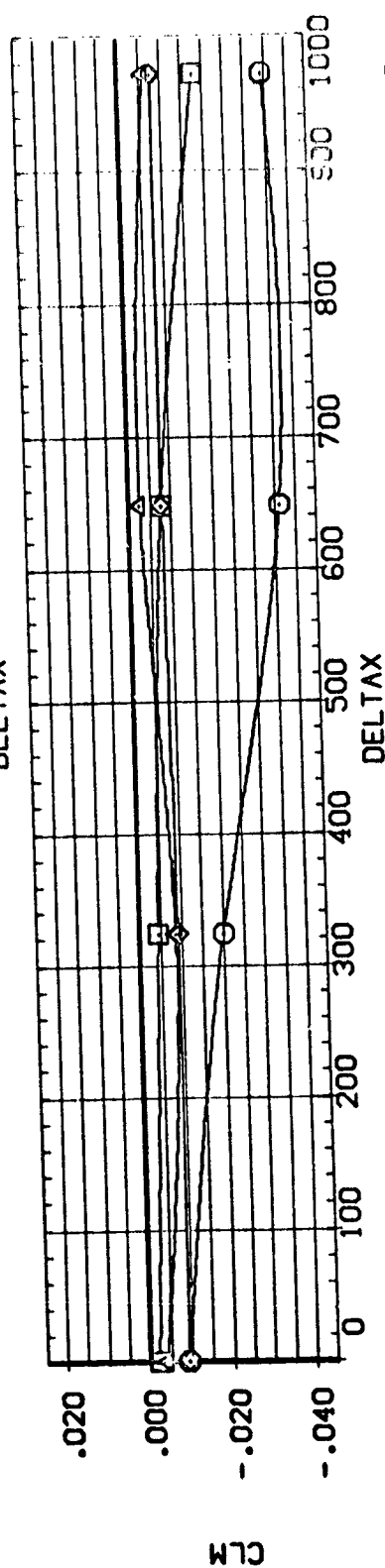
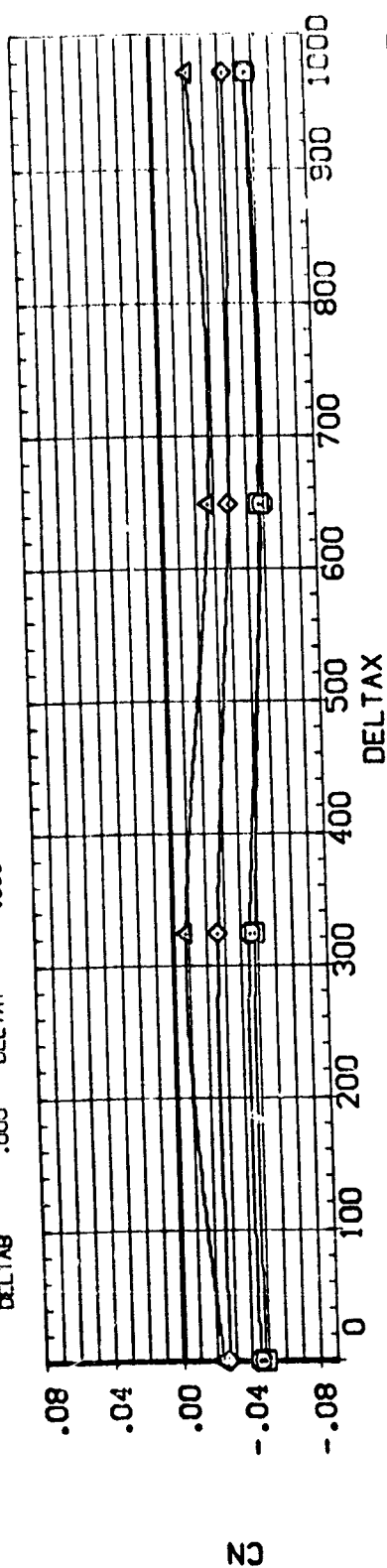
ALPHA  
MACH  
AIRLON  
RUOFLR  
DELTAB

| PARAMETRIC VALUES |        |
|-------------------|--------|
| BETA              | -2.000 |
| ELEVTR            | 4.960  |
| RUDDER            | .000   |
| DELTAA            | 40.000 |
| DELTAY            | .000   |

DATA SOURCE  
DELTAZ  
486.000

| DATASET | DELTAZ  | SREF  |
|---------|---------|-------|
| N85T04  | 162.000 | LREF  |
| N85T10  | 810.000 | BREF  |
|         |         | YREF  |
|         |         | ZREF  |
|         |         | SCALE |

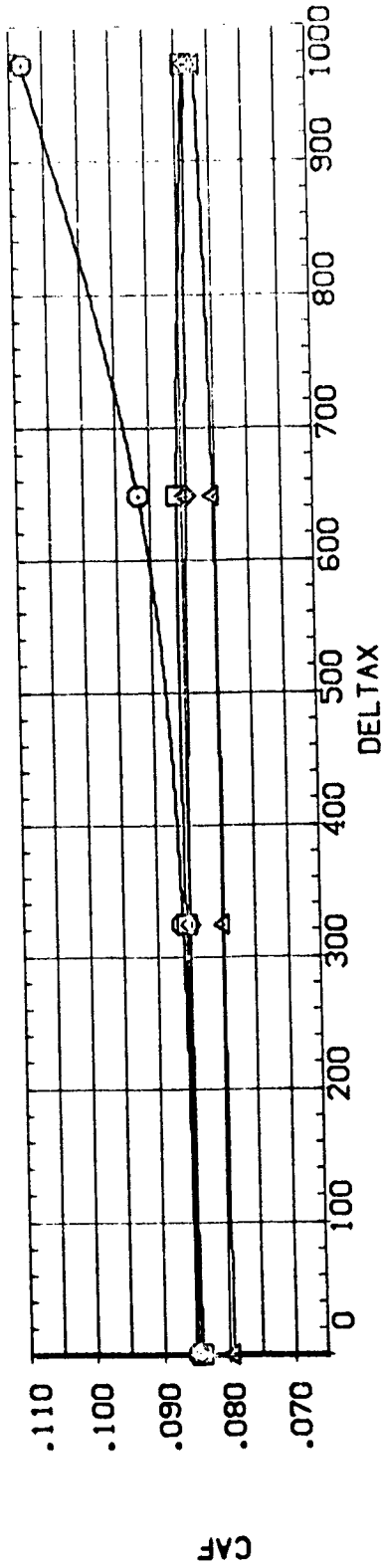
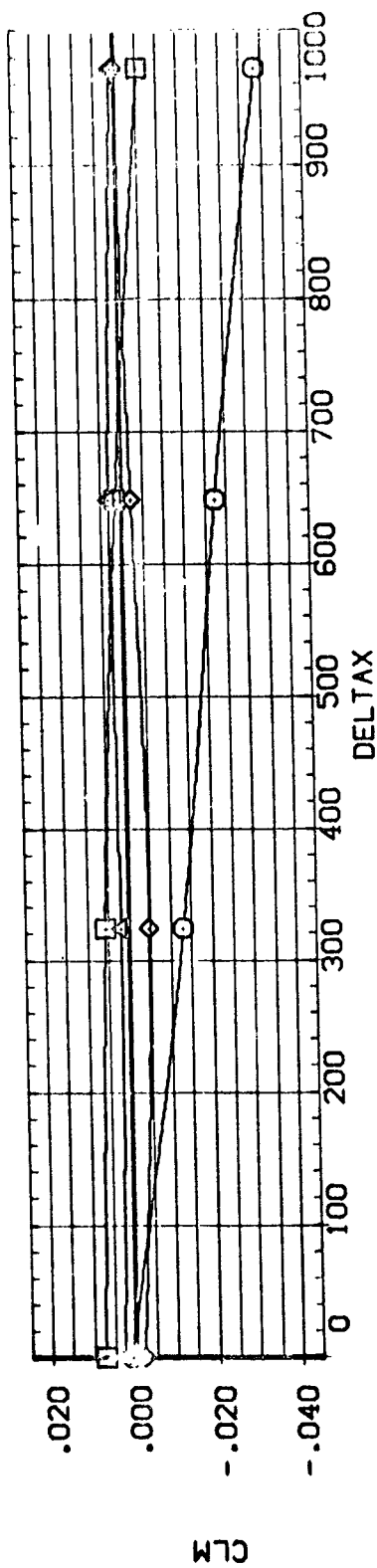
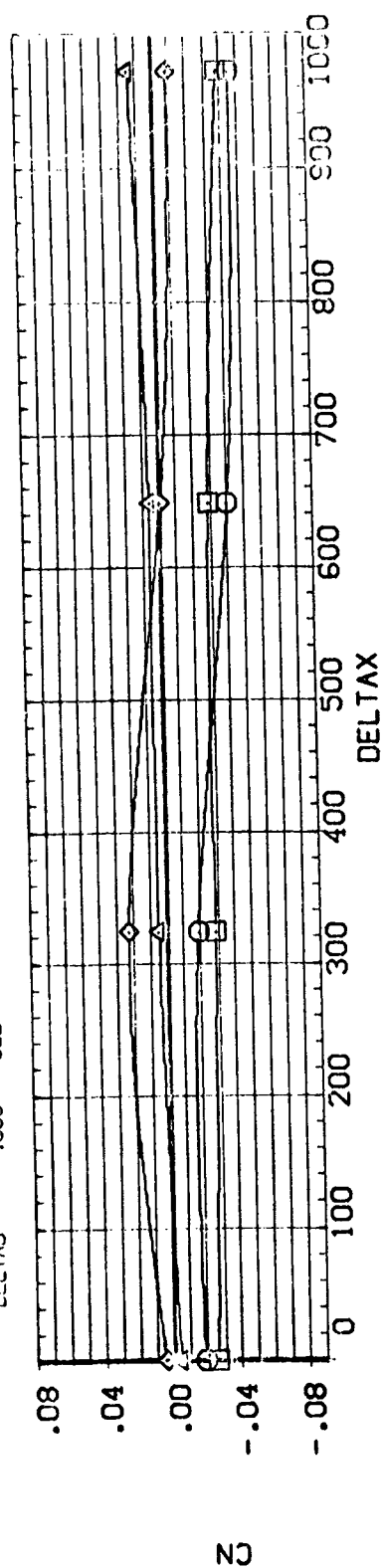
REFERENCE INFORMATION



# BASIC SEPARATION DATA- EXTERNAL TANK IN PRESENCE OF ORBITER.

# M571(1A6A) TANK(T9)SEPARATING FROM ORBITER(013) (N85T02)

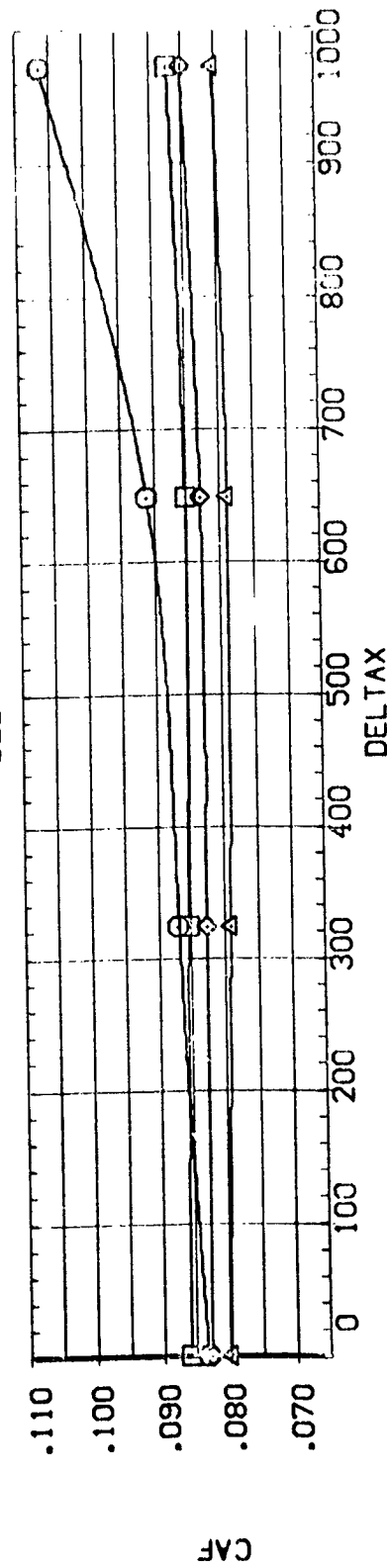
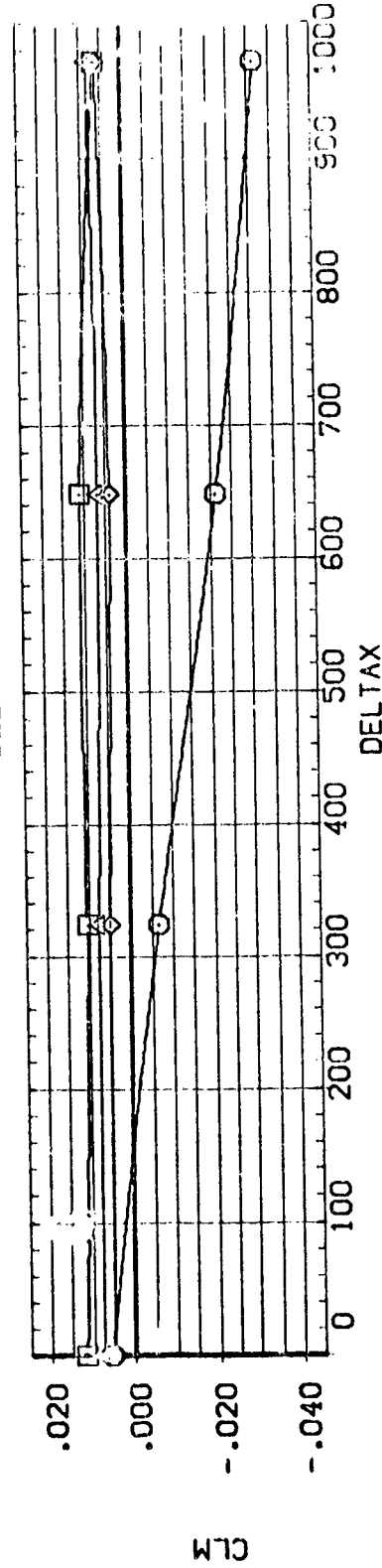
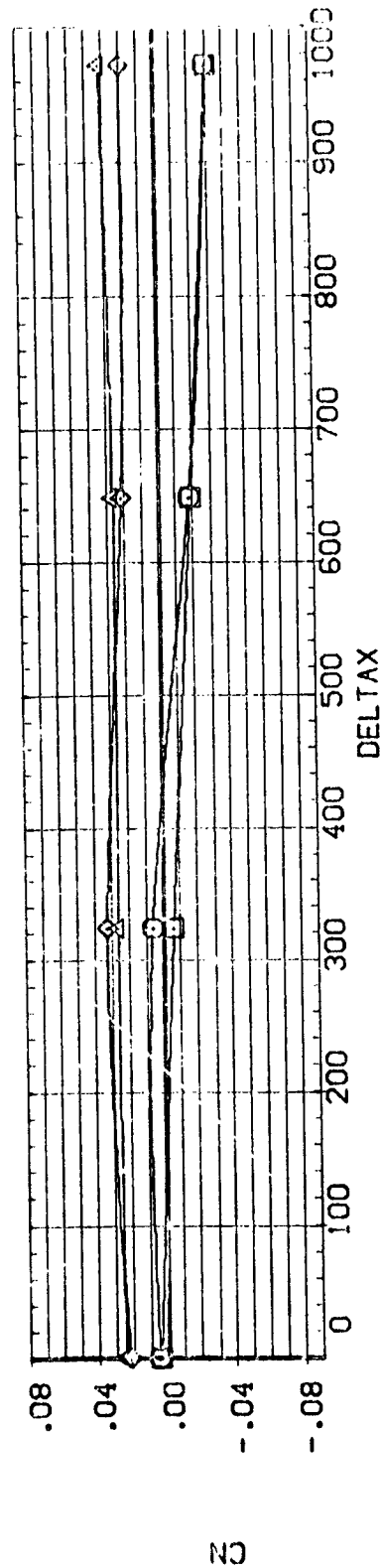
| SYMBOL | PARAMETRIC VALUES |        |         |         | DATA SOURCE |         | REFERENCE INFORMATION |           |           |           |
|--------|-------------------|--------|---------|---------|-------------|---------|-----------------------|-----------|-----------|-----------|
|        | DELTA Z           | ALPHA  | BETA    | DELTA Z | DELTA Z     | DELTA Z | SREF                  | LREF      | BREF      | SCALE     |
| ○      | .000              | .000   | .000    | .000    | .000        | .000    | 2690.0000             | 1328.0000 | 1328.0000 | 1328.0000 |
| □      | 162.000           | 4.960  | ELEVTR  | .000    | .000        | .000    | 1328.0000             | 1328.0000 | 1328.0000 | 1328.0000 |
| ◇      | 486.000           | .000   | RUDDER  | .000    | .000        | .000    | 929.0000              | 929.0000  | 929.0000  | 929.0000  |
| △      | 810.000           | 40.000 | DELTA Z | .000    | .000        | .000    | 0.0000                | 0.0000    | 0.0000    | 0.0000    |
|        |                   |        | DELTA Z | .000    | .000        | .000    | 0.0000                | 0.0000    | 0.0000    | 0.0000    |



BASIC SEPARATION DATA- EXTERNAL TANK IN PRESENCE OF ORBITER

## M571(C1A6A) TANK(T9)SEPARATING FROM ORBITER(013) (N85T02J)

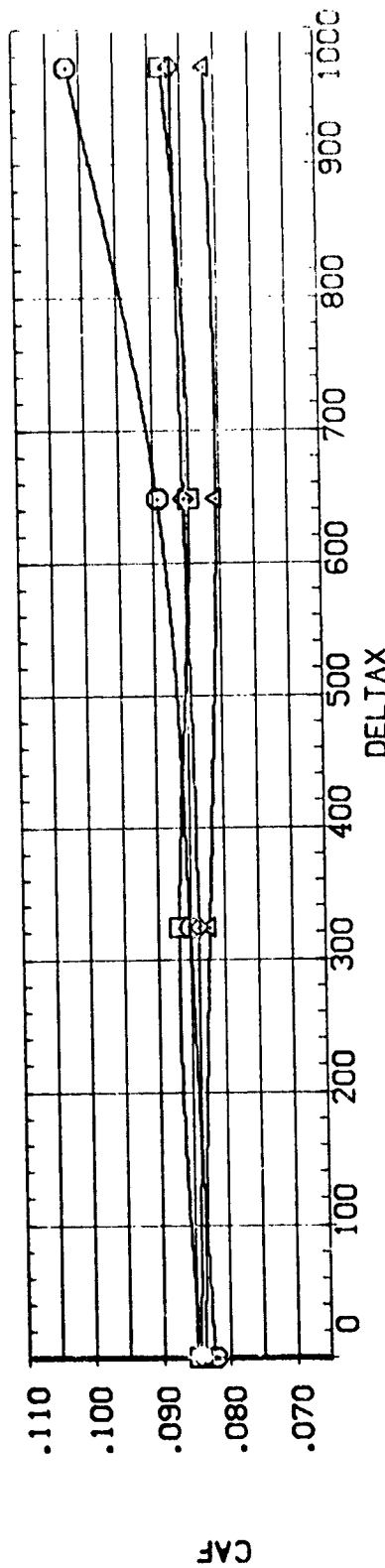
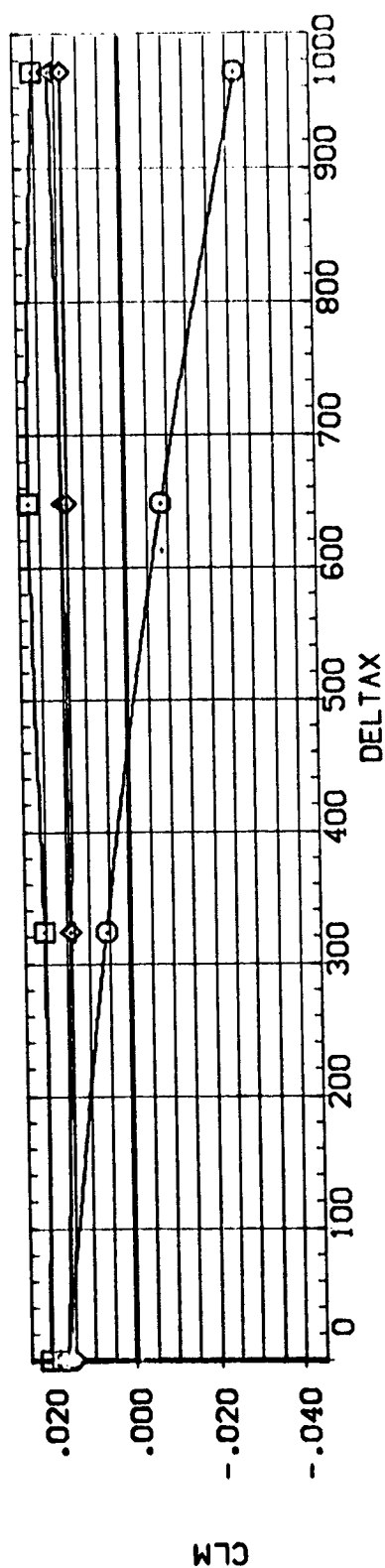
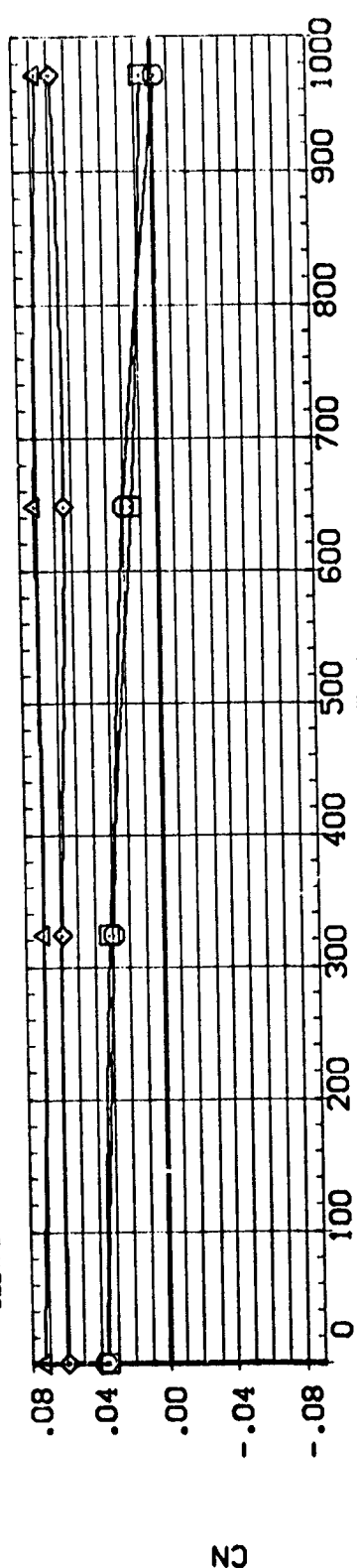
| SYMBOL | DELTAZ  | PARAMETRIC VALUES |        |         |        | DATA SOURCE |        |           | REFERENCE INFORMATION |  |  |
|--------|---------|-------------------|--------|---------|--------|-------------|--------|-----------|-----------------------|--|--|
|        |         | ALPHA             | BETA   | DATASET | DELTAZ | DATASET     | DELTAZ | SREF      | SG.FT.                |  |  |
| ○      | .000    | 2.000             |        | .000    |        |             |        | SREF      | 2690.0000             |  |  |
| □      | 162.000 | 4.960             | ELEVTR | .000    | N85T02 | 162.000     | LREF   | 1328.0000 |                       |  |  |
| ◇      | 486.000 |                   | RUDDER | .000    | N95T07 | 810.000     | SREF   | 1328.0000 |                       |  |  |
| △      | 810.000 | 40.000            | DELTA  | .000    |        |             | XPRP   | 929.0000  |                       |  |  |
|        |         |                   | DELTA  | .000    |        |             | YPRP   | .0000     |                       |  |  |
|        |         |                   | DELTA  | .000    |        |             | ZPRP   | .0000     |                       |  |  |
|        |         |                   |        | .000    |        |             | SCALE  | .0040     |                       |  |  |



### BASIC SEPARATION DATA- EXTERNAL TANK IN PRESENCE OF ORBITER

# M571(1A6A) TANK(T9)SEPARATING FROM ORBITER(013) (N85T02)

| SYMBOL | PARAMETRIC VALUES |         |         |         | DATA SOURCE |         | REFERENCE INFORMATION |         |         |         |
|--------|-------------------|---------|---------|---------|-------------|---------|-----------------------|---------|---------|---------|
|        | DELTA Z           | ALPHA   | BETA    | DELTA Z | DELTA Z     | DELTA Z | DELTA Z               | DELTA Z | DELTA Z | DELTA Z |
| ○      | .000              | 5.000   | 4.960   | .000    | .000        | .000    | .000                  | .000    | .000    | .000    |
| □      | 162.000           | MACH    | ELEVTR  | .000    | .000        | .000    | .000                  | .000    | .000    | .000    |
| ◇      | 486.000           | AILRON  | RUDDER  | .000    | .000        | .000    | .000                  | .000    | .000    | .000    |
| △      | 810.000           | RUDDER  | DELTA Z | .000    | .000        | .000    | .000                  | .000    | .000    | .000    |
|        |                   | DELTA Z | DELTA Z | .000    | .000        | .000    | .000                  | .000    | .000    | .000    |



BASIC SEPARATION DATA- EXTERNAL TANK IN PRESENCE OF ORBITER

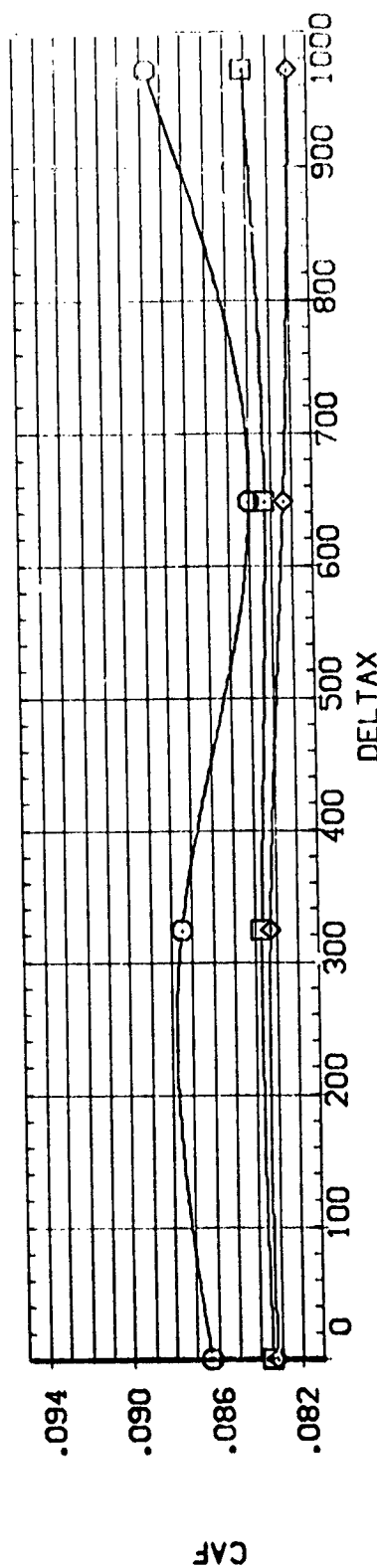
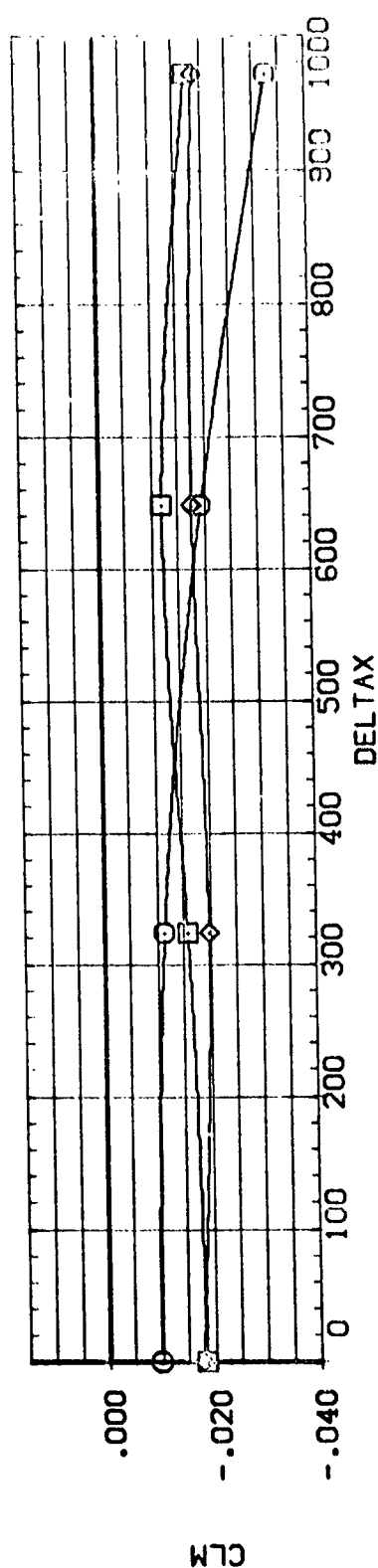
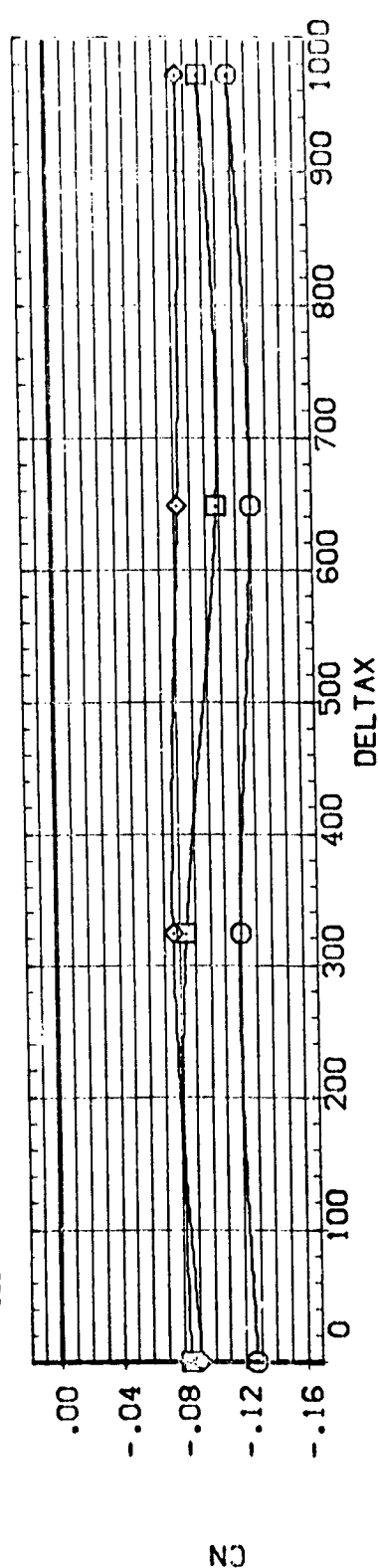
| Age Group | Percentage of Respondents |
|-----------|---------------------------|
| 18-29     | 85%                       |
| 30-39     | 75%                       |
| 40-49     | 65%                       |
| 50-59     | 55%                       |
| 60-69     | 50%                       |
| 70-79     | 55%                       |
| 80+       | 45%                       |

SYMBOLS



# M571(1A6A) TANK(T9)SEPARATING FROM ORBITER(013) (N85T05)

| SYMBOL |  | DELTA Z |  | PARAMETRIC VALUES |        | DATA SOURCE |       | REFERENCE INFORMATION |       |
|--------|--|---------|--|-------------------|--------|-------------|-------|-----------------------|-------|
| ○      |  | 162.000 |  | ALPHA             | -2.000 | BETA        | .000  | DELTA Z               | SREF  |
| □      |  | 486.000 |  | MACH              | 4.950  | ELEVTR      | .000  | N85T05                | LREF  |
| ◇      |  | 810.000 |  | AJLON             | .000   | RLODER      | .000  | N85T11                | BREF  |
|        |  |         |  | RJOFIR            | 40.000 | DELTA Z     | 5.000 |                       | XGRP  |
|        |  |         |  | DELTA Z           | .000   | DELTA Y     | .000  |                       | YGRP  |
|        |  |         |  |                   |        |             |       |                       | ZGRP  |
|        |  |         |  |                   |        |             |       |                       | SCALE |
|        |  |         |  |                   |        |             |       |                       | .0040 |

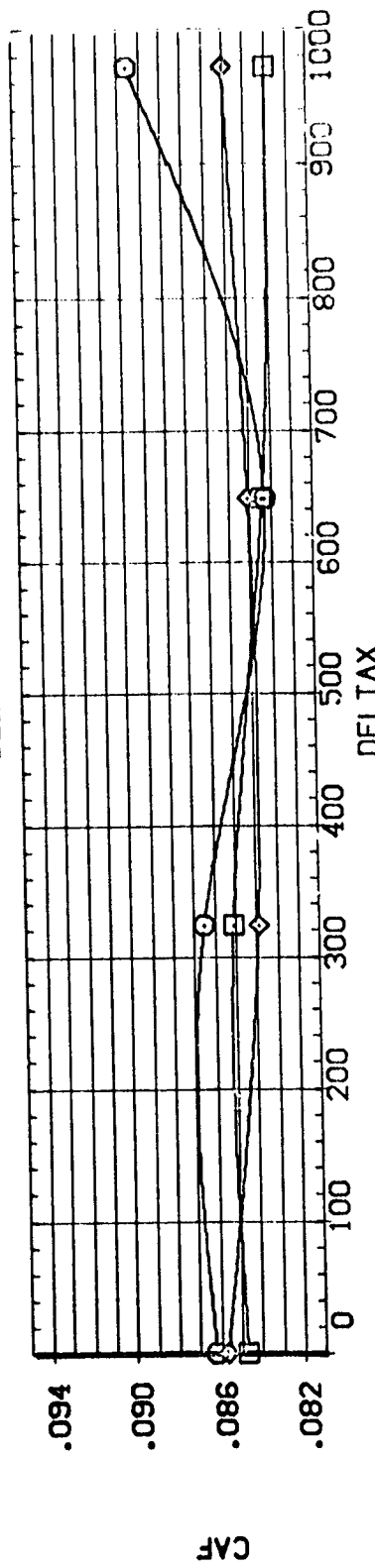
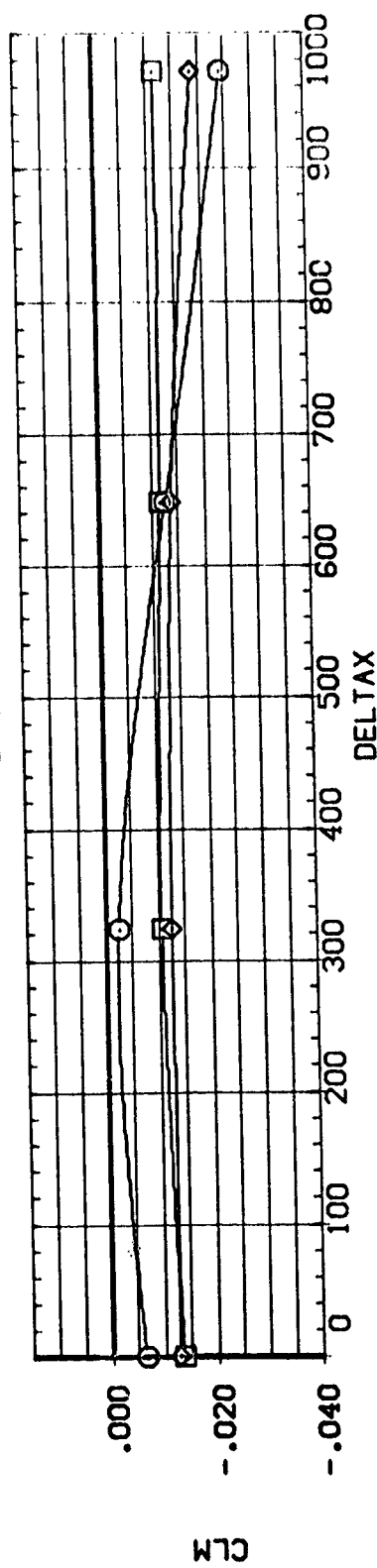
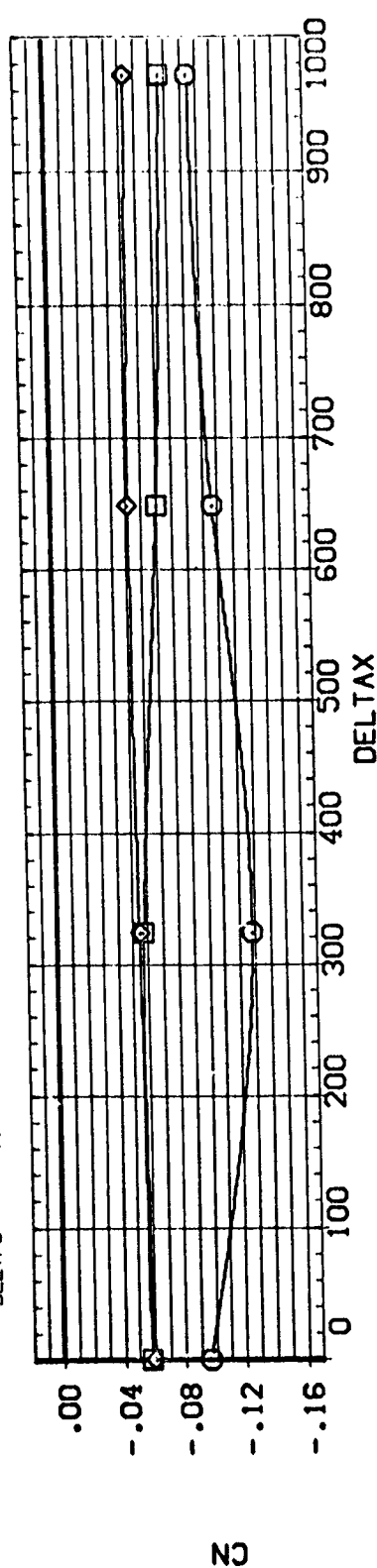


BASIC SEPARATION DATA- EXTERNAL TANK IN PRESENCE OF ORBITER



# M571(1A6A) TANK(T9)SEPARATING FROM ORBITER(013) (N85T05)

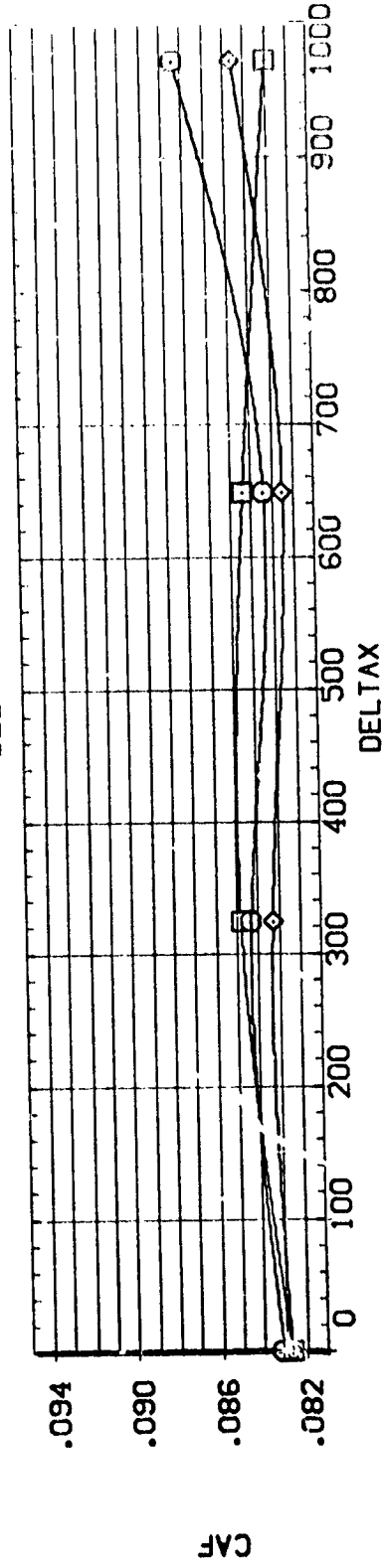
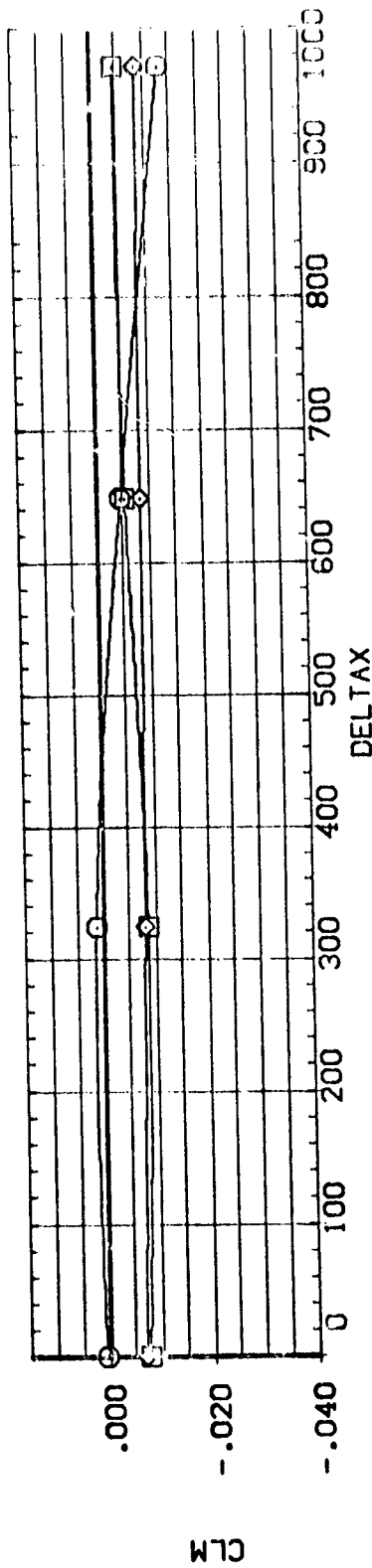
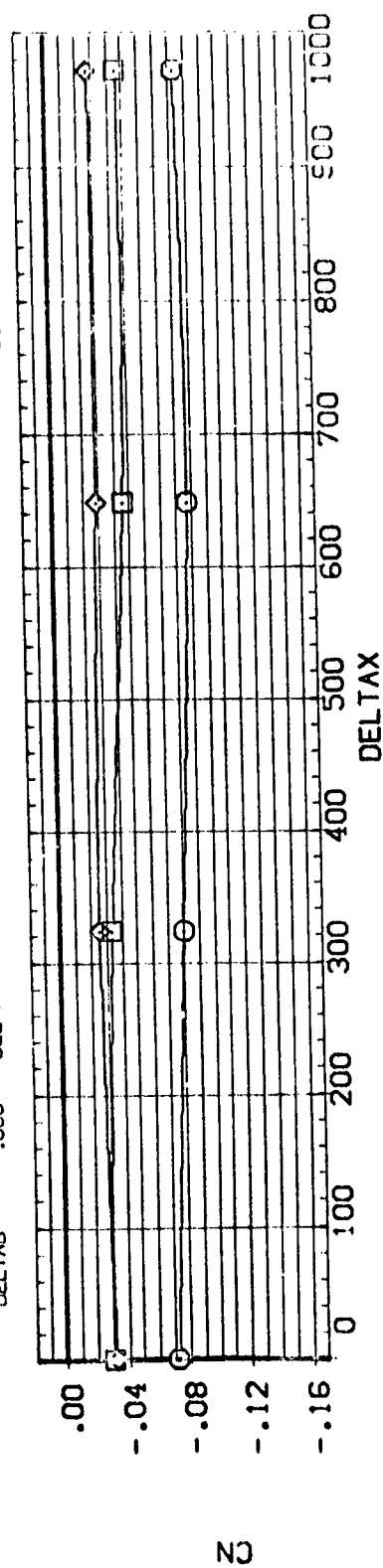
| SYMBOL | DELTA Z | ALPHA  | PARAMETRIC VALUES | DATA SOURCE | DELTA Z | DELTA TAZ | REFERENCE INFORMATION |
|--------|---------|--------|-------------------|-------------|---------|-----------|-----------------------|
| ○      | 162.000 | .000   | BETA              | .000        | N85T05  | SREF      | 2690.0000             |
| □      | 486.000 | 4.960  | ELEVTR            | .000        | N85T05  | LREF      | 1328.3000             |
| ◇      | 810.000 | .000   | RUDDER            | .000        | N85T11  | BREF      | 1328.3000             |
|        |         | 40.000 | DELTA A           | 5.000       |         | XMRP      | 929.0000              |
|        |         | .000   | DELTA Y           | .000        |         | YMRP      | .0000                 |
|        |         |        |                   |             |         | ZMRP      | .0000                 |
|        |         |        |                   |             |         | SCALE     | .0040                 |



BASIC SEPARATION DATA- EXTERNAL TANK IN PRESENCE OF ORBITER

# M571(1A6A) TANK(T9)SEPARATING FROM ORBITER(C13) (N85TC5)

| SYMBOL | PARAMETRIC VALUES |        |         |         | DATA SOURCE |         | REFERENCE INFORMATION |           |           |        |
|--------|-------------------|--------|---------|---------|-------------|---------|-----------------------|-----------|-----------|--------|
|        | DELTA Z           | ALPHA  | BETA    | DELTA T | DELTA Z     | DELTA T | SREF                  | LREF      | BREF      | SCALE  |
| ○      | 162.000           | 2.000  | 4.560   | .000    | N85TC5      | 162.000 | 2690.0000             | 1328.0000 | 1328.0000 | 1.0000 |
| □      | 486.000           | .000   | .000    | .000    | N85TC5      | 810.000 | 1328.0000             | 929.0000  | 1.0000    | 1.0000 |
| ◇      | 810.000           | 40.000 | DELTA T | .000    | N85TC5      | DELTA T | 1.0000                | 1.0000    | 1.0000    | 1.0000 |



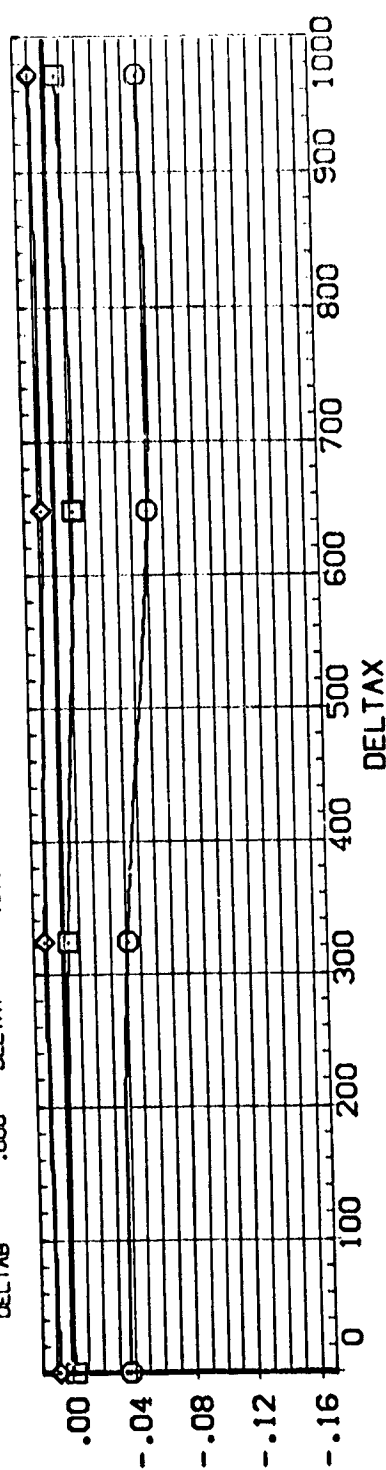
BASIC SEPARATION DATA- EXTERNAL TANK IN PRESENCE OF ORBITER



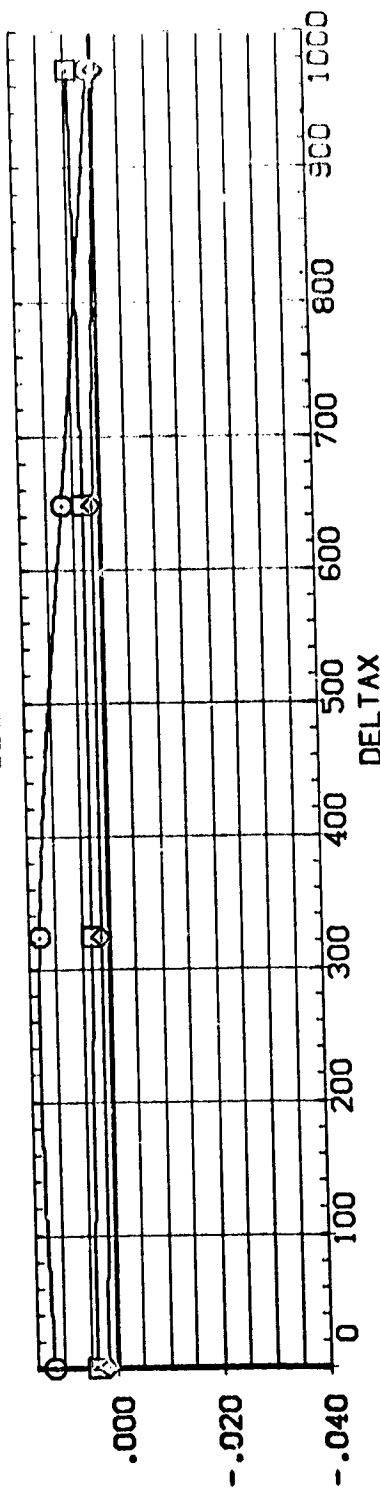
# M571(IA6A) TANK(T9)SEPARATING FROM ORBITER(013) (N85T05)

| SYMBOL |         | DELTA Z |        | PARAMETRIC VALUES |       | DATA SOURCE |       | REFERENCE INFORMATION |        |
|--------|---------|---------|--------|-------------------|-------|-------------|-------|-----------------------|--------|
| ○      | ALPHA   | 162.000 | 5.000  | BETA              | .000  | DELTA Z     | SREF  | 2590.0000             | SG.FT. |
| □      | MACH    | 486.000 | 4.960  | ELEVTR            | .000  | DELTA Z     | LREF  | 1328.3000             | IN:    |
| ◇      | AILRON  | 810.000 | .000   | RUDDER            | .000  | DELTA Z     | BREF  | 1328.3000             | IN:    |
|        | RUDFLR  |         | 40.000 | DELTA Z           | 5.000 | DELTA Z     | XPRP  | 529.0000              | IN:    |
|        | DELTA Z |         | .000   | DELTA Z           | .000  | DELTA Z     | YPRP  | .0000                 | IN:    |
|        |         |         |        |                   |       | DELTA Z     | ZPRP  | .0000                 | IN:    |
|        |         |         |        |                   |       | DELTA Z     | SCALE | .0040                 |        |

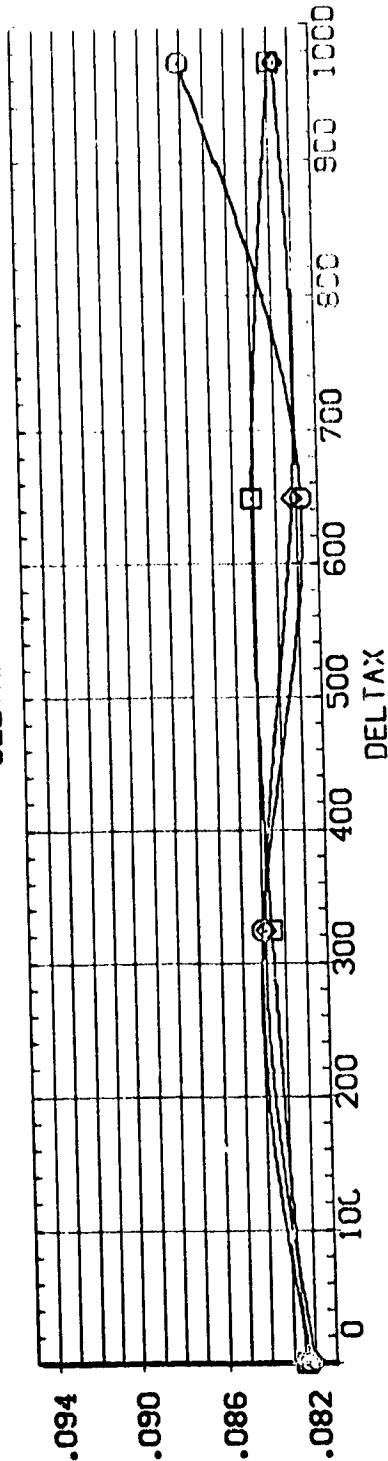
CN



CLM

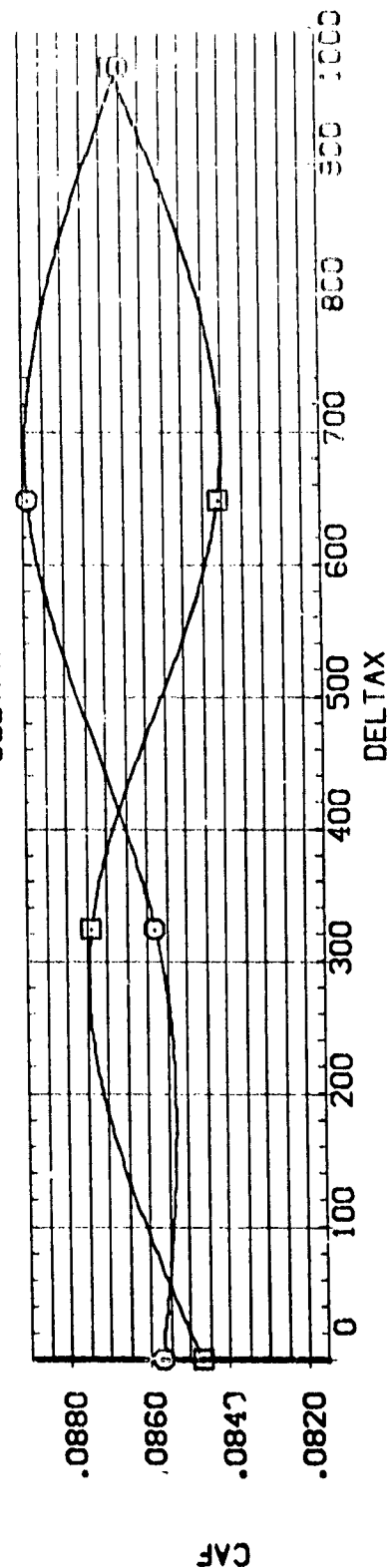
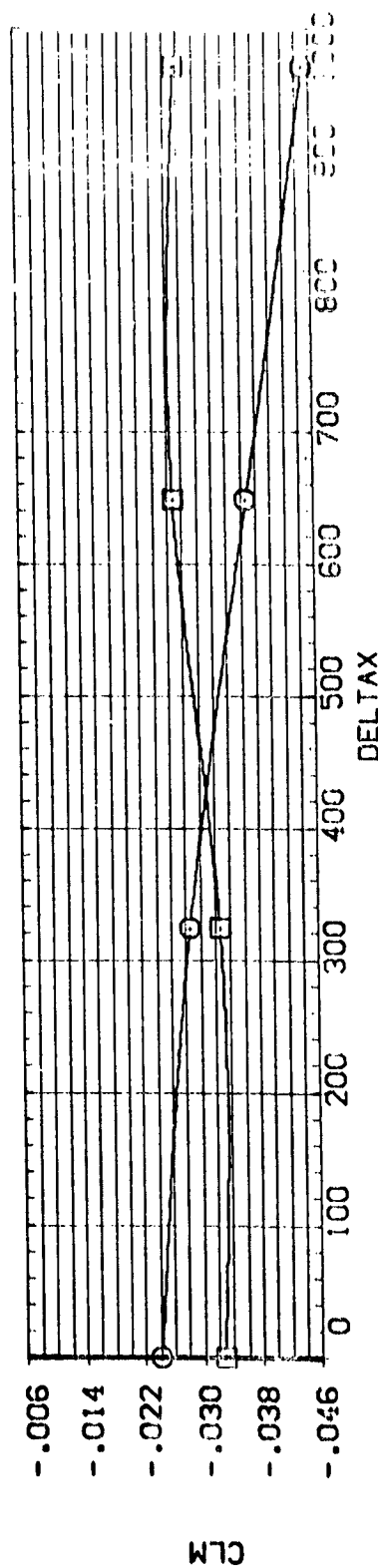
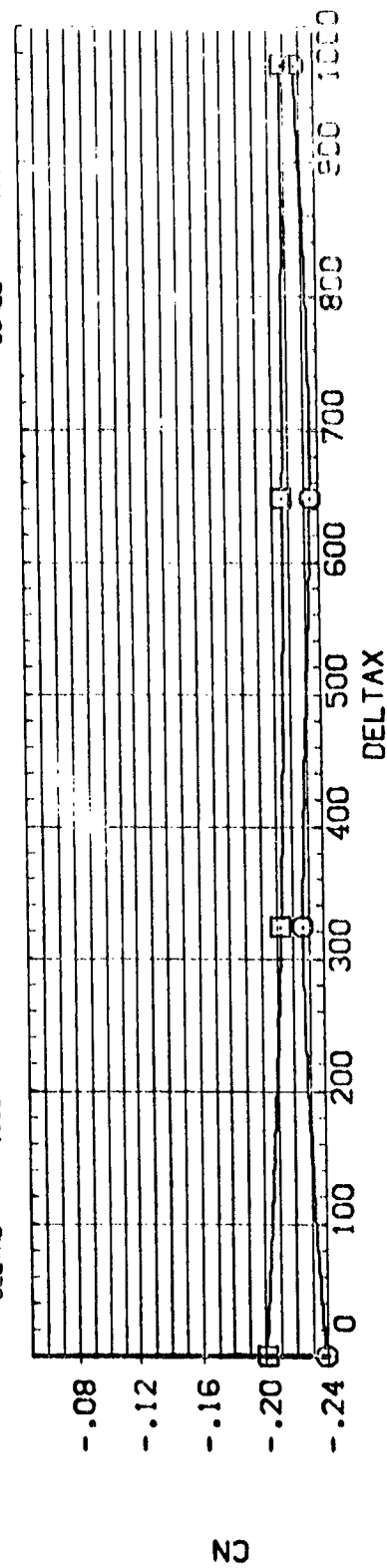


CAF



BASIC SEPARATION DATA- EXTERNAL TANK IN PRESENCE OF ORBITER

| SYMBOL                          | PARAMETRIC VALUES |        | DATA SOURCE |         | REFERENCE INFORMATION |        |
|---------------------------------|-------------------|--------|-------------|---------|-----------------------|--------|
|                                 | DELTAZ            | BETA   | DELTAZ      | DATASET | SPICE                 | DELTAZ |
| <input type="radio"/> ALPHA     | -5.000            | .000   | 485.000     | NBS12   | 2890.000              | 50.000 |
| <input type="checkbox"/> MACH   | 4.560             | .000   |             |         | 2890.000              | 50.000 |
| <input type="checkbox"/> ATLRON | .000              | .000   |             |         | 2890.000              | 50.000 |
| <input type="checkbox"/> RJOFRL | 40.000            | 10.000 |             |         | 2890.000              | 50.000 |
| <input type="checkbox"/> DELTAB | .000              | .000   |             |         | 2890.000              | 50.000 |



# BASIC SEPARATION DATA- EXTERNAL TANK IN PRESENCE OF ORBITER

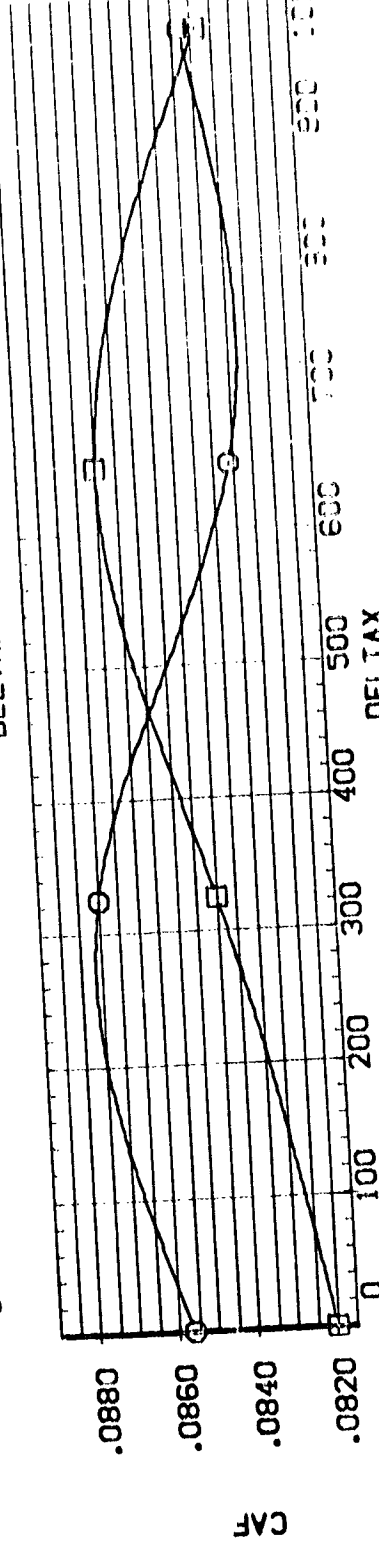
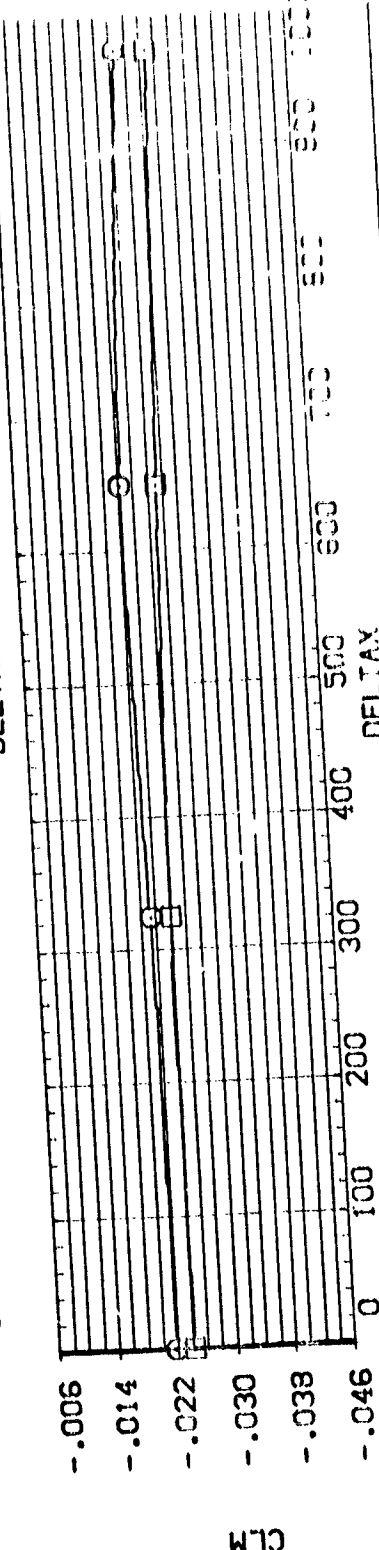
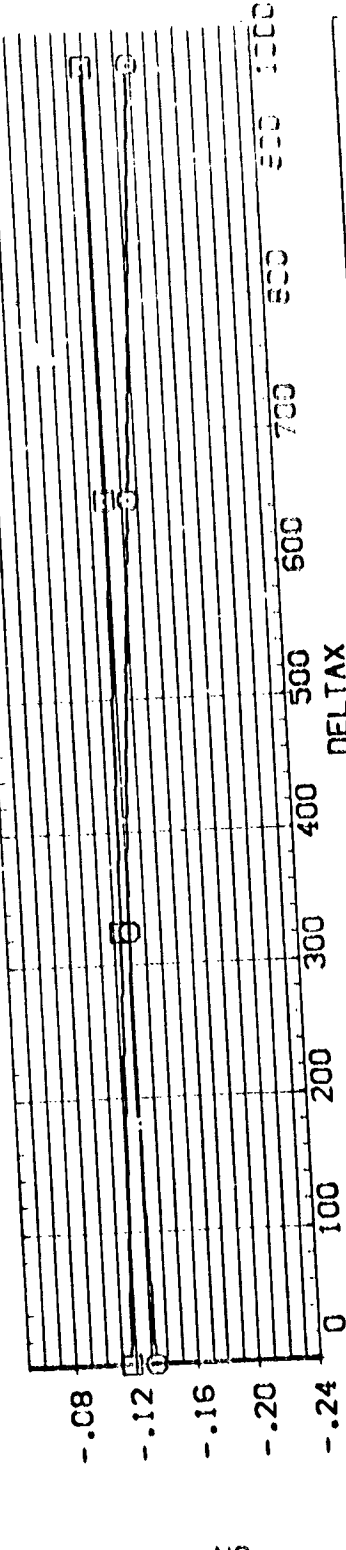


# M571(IAGAJ) TANK(T9)SEPARATING FROM ORBITER(010) (V85T08)

SYNOPSIS  
 DELTAZ  
 485.000  
 810.000

PARAMETRIC VALUES  
 ALPHA .000  
 MACH 4.550  
 AILRON .000  
 RUDELR 40.000  
 DELTAB .000

DATA SOURCE  
 DELTAZ 485.000  
 DATASET V85T12  
 DELTAT 810.000  
 SCALE



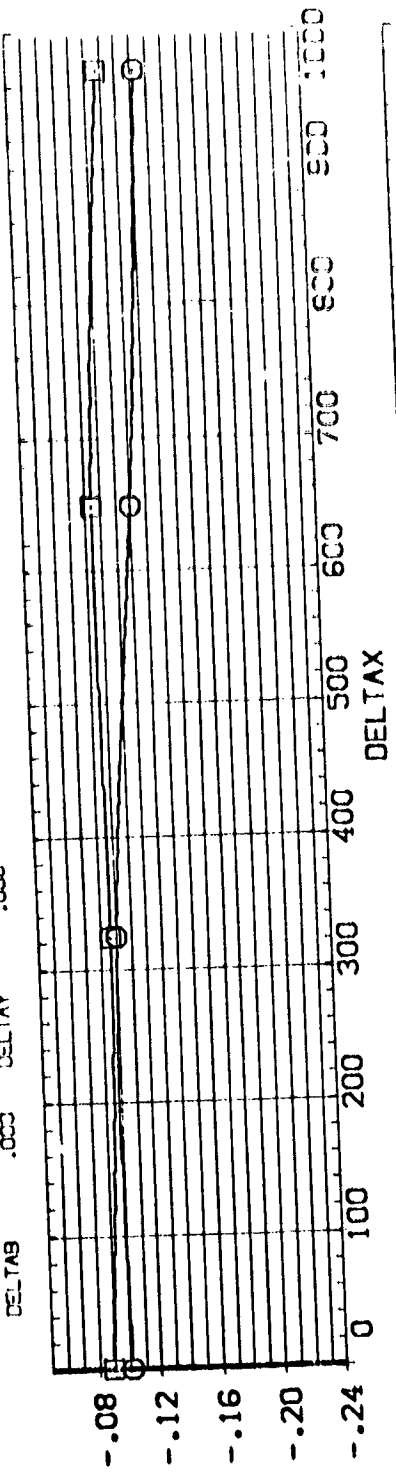
BASIC SEPARATION DATA- EXTERNAL TANK IN PRESENCE OF ORBITER



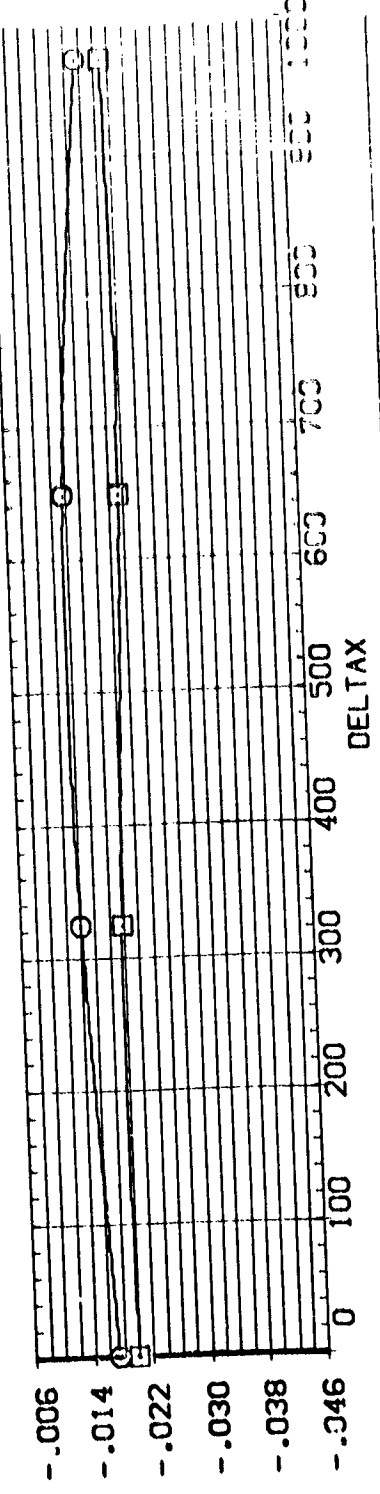
# M571(1A6A) TANK(9)SEPARATING FROM ORBITER(013) (N85TC09)

| SYMBOL | PARAMETRIC VALUES |         |         | DATA SOURCE |         |         | REFERENCE INFORMATION |         |         |
|--------|-------------------|---------|---------|-------------|---------|---------|-----------------------|---------|---------|
|        | DELTA Z           | ALPHA   | MACH    | DELTA Z     | DELTA Z | DELTA Z | DELTA Z               | DELTA Z | DELTA Z |
| ○      | 486.000           | 2.000   | 4.960   | .000        | N85TC09 | 485.000 | 810.000               | 810.000 | 810.000 |
| □      | 810.000           | .000    | .000    | .000        |         |         |                       |         |         |
|        |                   | 40.000  | 40.000  | 10.000      |         |         |                       |         |         |
|        |                   | DELTA Z | DELTA Z | DELTA Z     |         |         |                       |         |         |

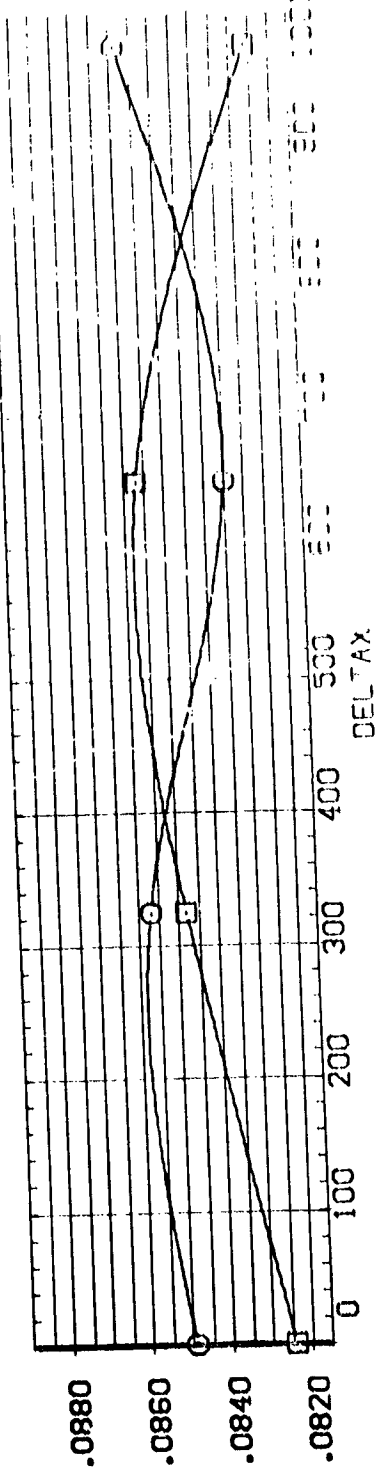
CZ



CLM



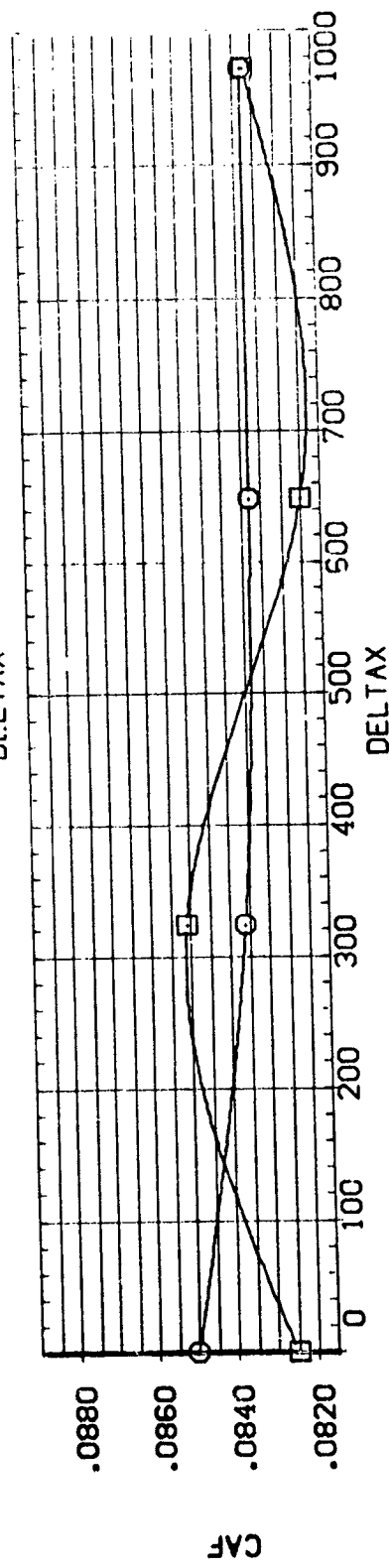
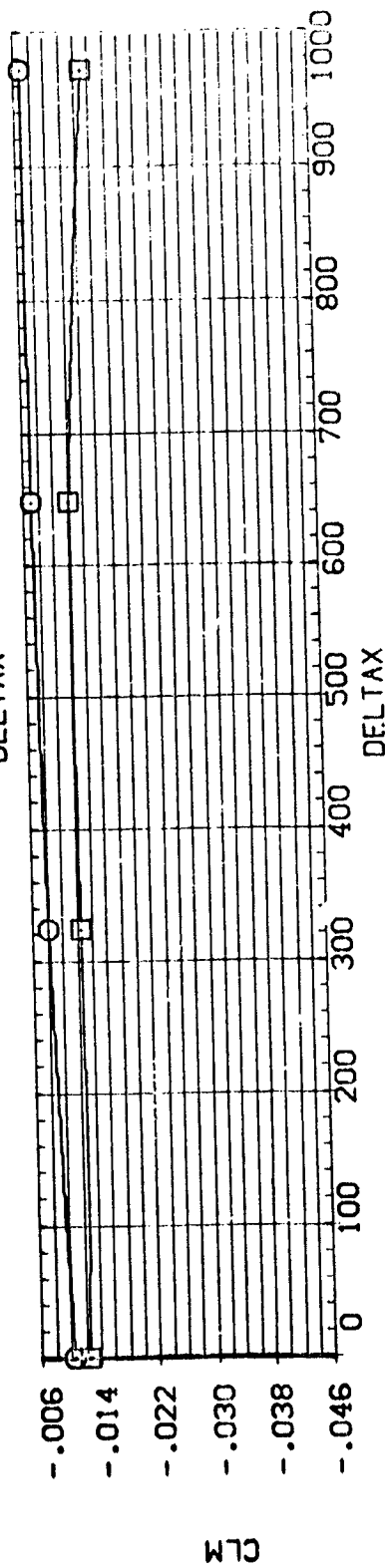
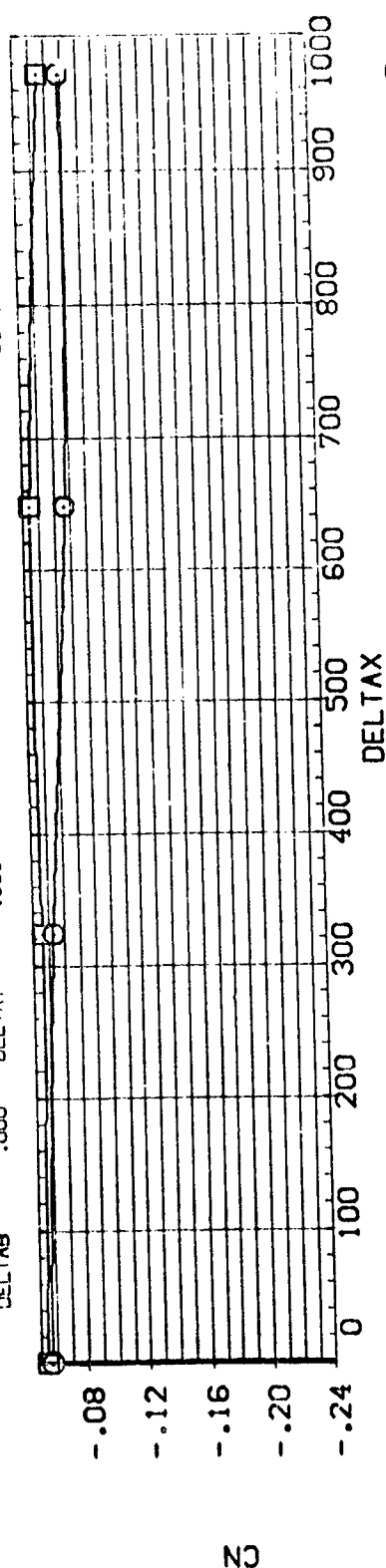
CAF



BASIC SEPARATION DATA- EXTERNAL TANK IN PRESENCE OF ORBITER

# M571(1A6A) TANK(T9)SEPARATING FROM ORBITER(013) (N85T09)

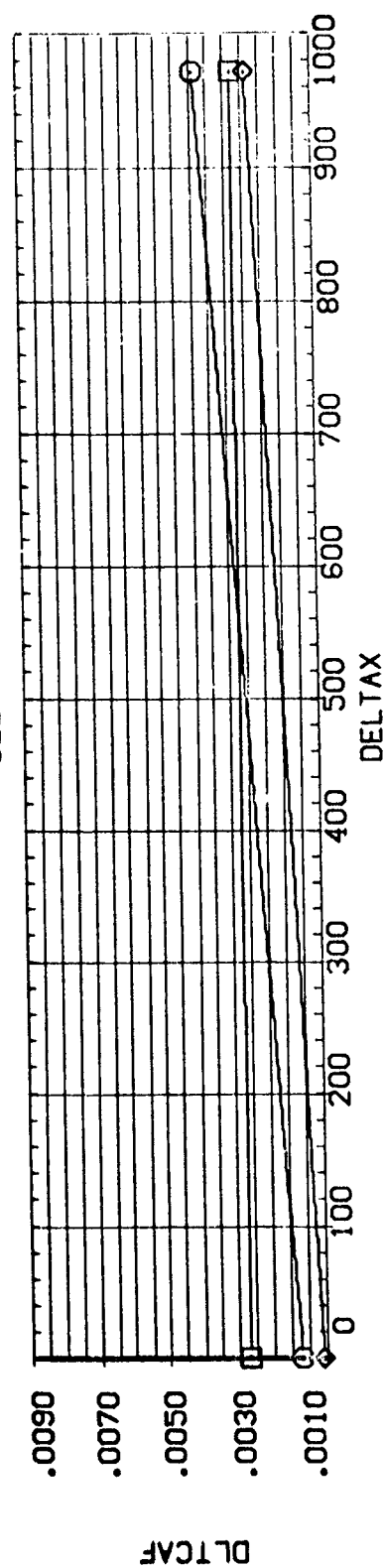
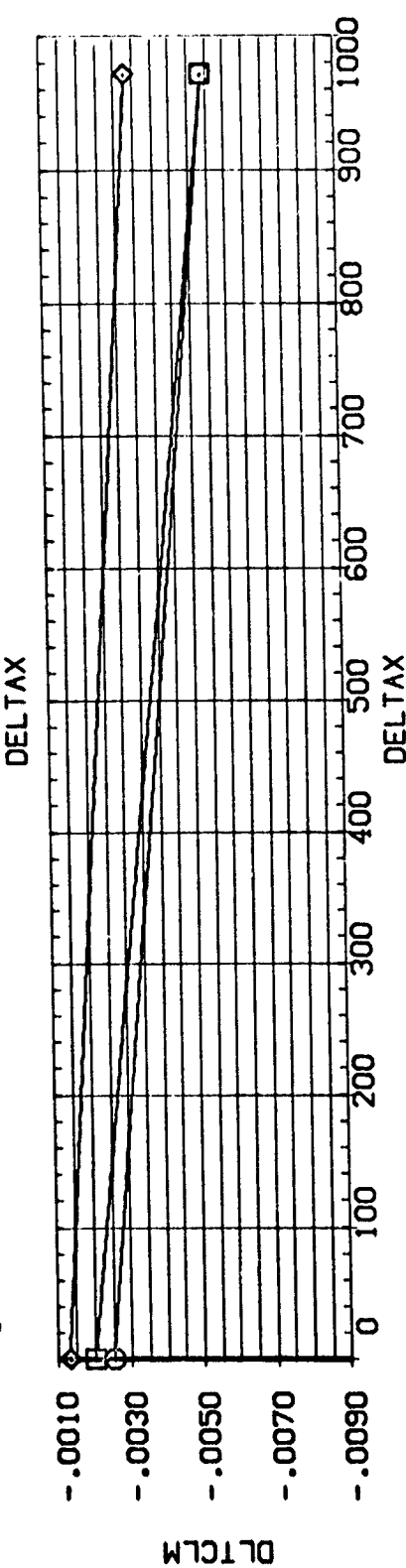
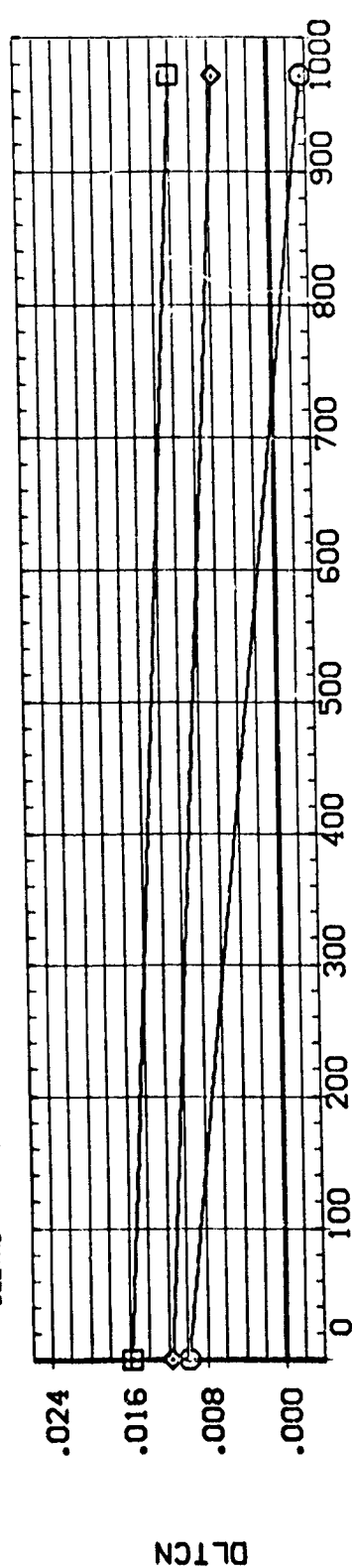
| SYMBOL | PARAMETRIC VALUES |         |        |         | DATA SOURCE |         | REFERENCE INFORMATION |           |
|--------|-------------------|---------|--------|---------|-------------|---------|-----------------------|-----------|
|        | DELTA Z           | ALPHA   | BETA   | ELEVTR  | DATASET     | DELTA Z | SREF                  | 50. FT.   |
| 001    | 486.000           | MACH    | 4.960  | ELEVTR  | .000        | DELTA Z | LREF                  | 1328.3000 |
|        | 810.000           | AILRON  | .000   | RUDER   | .000        | DELTA Z | BREF                  | 1328.3000 |
|        |                   | RUDFLR  | 40.000 | DELTA Z | 10.000      | DELTA Z | YMRP                  | 929.0000  |
|        |                   | DELTA B | .000   | DELTA Z | .000        | DELTA Z | ZMRP                  | .0000     |
|        |                   |         |        |         |             | DELTA Z | SCALE                 | .0040     |



BASIC SEPARATION DATA- EXTERNAL TANK IN PRESENCE OF ORBITER

# M571(IAGA) ORB (013) WITH TANK (T9) SEPARATING (C85013)

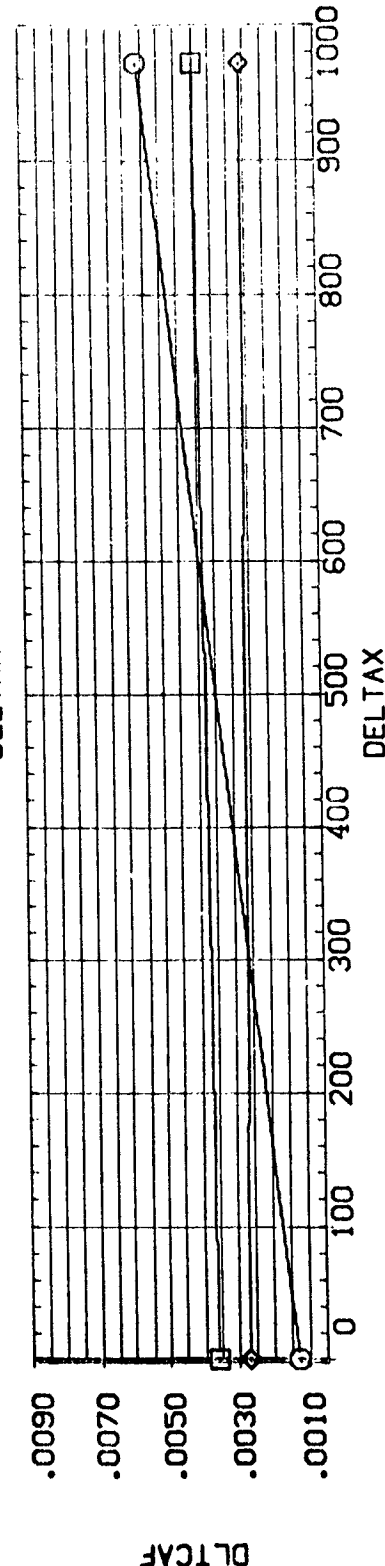
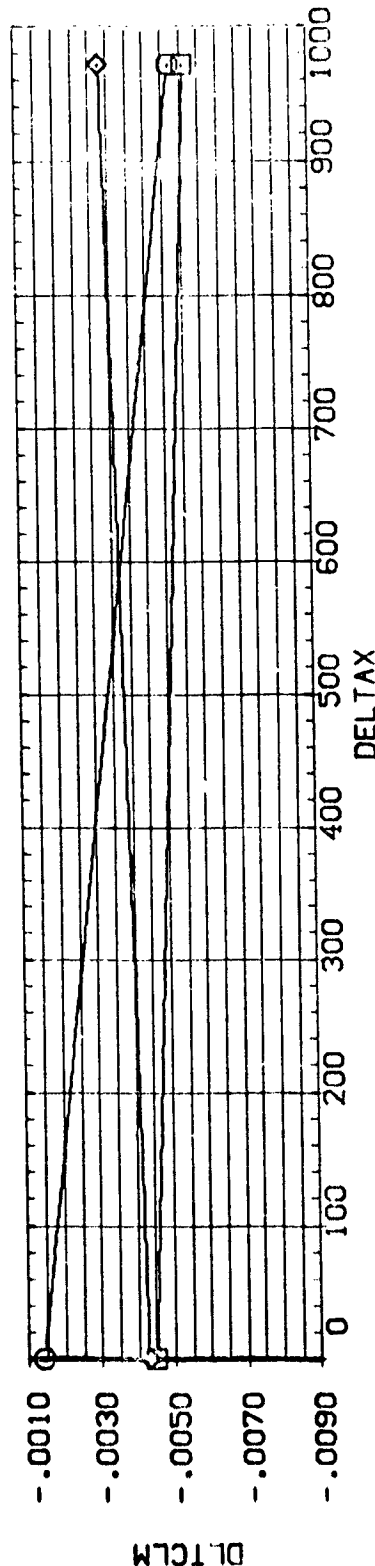
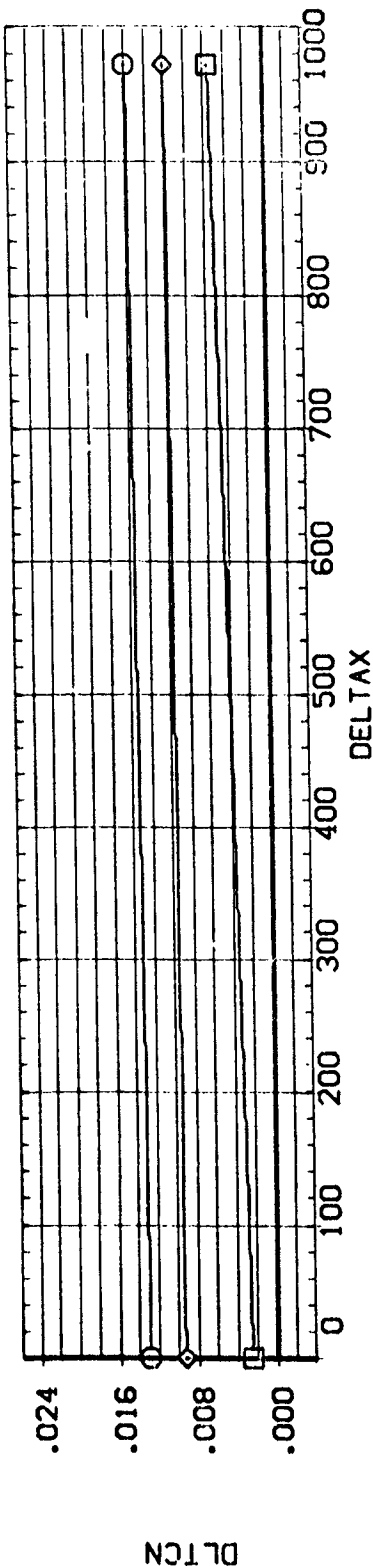
| SYMBOL | DELTA Z | PARAMETRIC VALUES |         |         |        | DATA SOURCE |           | REFERENCE INFORMATION |           |           |        |
|--------|---------|-------------------|---------|---------|--------|-------------|-----------|-----------------------|-----------|-----------|--------|
|        |         | ALPHA             | BETA    | DL TELV | RUDDER | DELTA Z     | DELTA TAZ | SREF                  | LREF      | BREF      | SG.FT. |
| □      | .000    | -5.000            | .000    | 10.000  | .000   | .000        | C85013    | 2690.0000             | 1328.3000 | 1328.3000 | IN.    |
| ◇      | 162.000 | 4.960             | .000    | .000    | .000   | 486.000     | C85016    | 1328.3000             | 867.7000  | 867.7000  | IN.    |
|        | 486.000 | 40.000            | .000    | .000    | .000   |             |           | XMRP                  | YMRP      | ZMRP      | IN.    |
|        |         | DELTA B           | DELTA Y |         |        |             |           | SCALE                 |           |           | IN.    |
|        |         |                   |         |         |        |             |           |                       |           |           | .0040  |



ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK

# M571(IA6A) ORB (013) WITH TANK (T9) SEPARATING (C85013)

| SYMBOL | DELTA Z | PARAMETRIC VALUES |       |         |         | DATA SOURCE |         | REFERENCE INFORMATION |           |           |          |
|--------|---------|-------------------|-------|---------|---------|-------------|---------|-----------------------|-----------|-----------|----------|
|        |         | ALPHA             | BETA  | DELTA Z | DELTA Z | DELTA Z     | DELTA Z | SREF                  | LREF      | BREF      | XMRP     |
| ○      | .000    | -2.000            | 4.950 | .000    | .000    | .000        | .000    | 2690.3000             | 1328.3000 | 1328.3000 | 867.7000 |
| □      | 162.000 | .000              | .000  | .000    | .000    | .000        | .000    | .0000                 | .0000     | .0000     | .0000    |
| ◇      | 486.000 | 40.000            | .000  | .000    | .000    | .000        | .000    | .0000                 | .0000     | .0000     | .0000    |



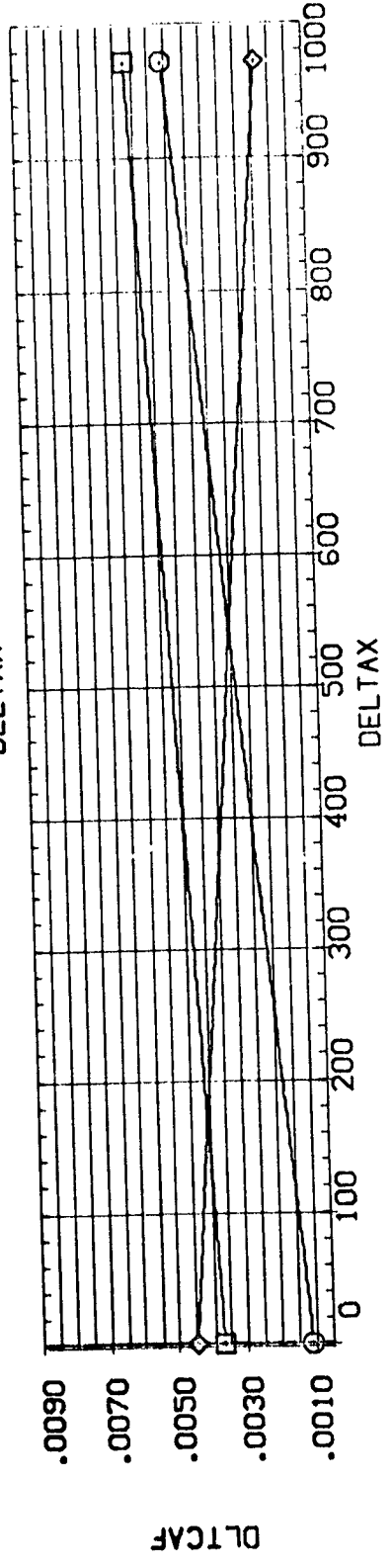
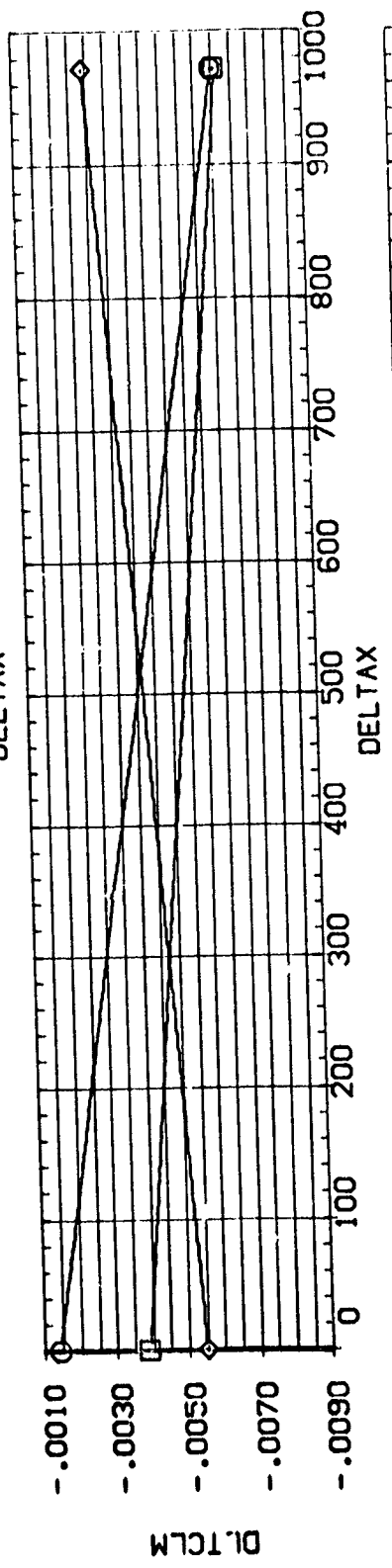
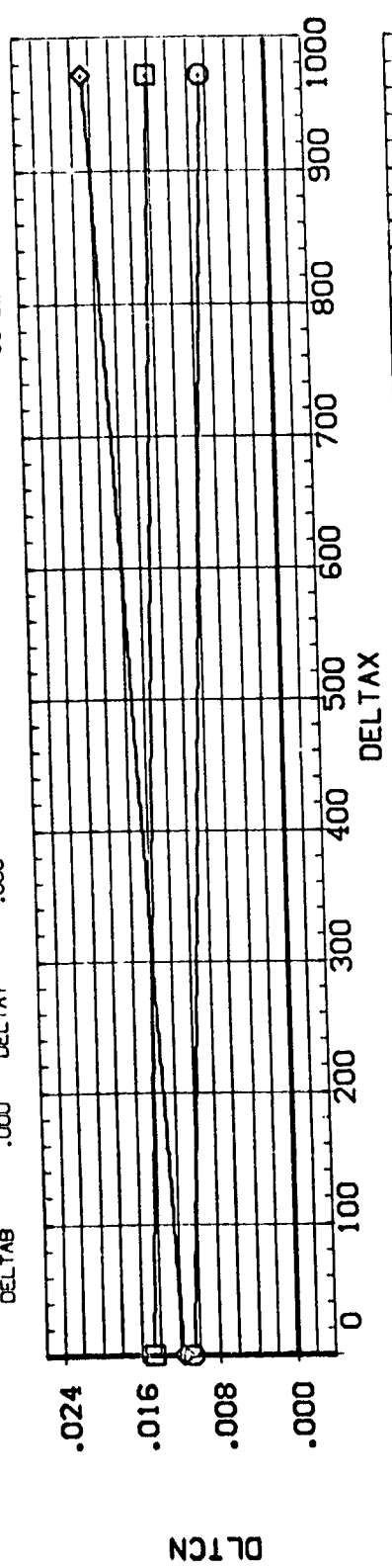
ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK



M571(1A6A) GRB (013) WITH TANK (T9) SEPARATING (C85013)

| PARAMETRIC VALUES |        | DATA SOURCE |         | REFERENCE INFORMATION |           |
|-------------------|--------|-------------|---------|-----------------------|-----------|
| DELTAZ            | ALPHA  | .000        | DELTAZ  | SREF                  | 2690.0000 |
| 162.000           | MACH   | 4.960       | .000    | LREF                  | 1328.3000 |
| 486.000           | AILRON | .000        | 486.000 | BREF                  | 1328.3000 |
|                   | RJDFLR | 40.000      |         | XMRP                  | 867.7000  |
|                   | DELTAZ | .000        |         | YMRP                  | .0000     |
|                   | DELTAZ | .000        |         | ZMRP                  | .0000     |
|                   | DELTAZ | .000        |         | SCALE                 | .0040     |

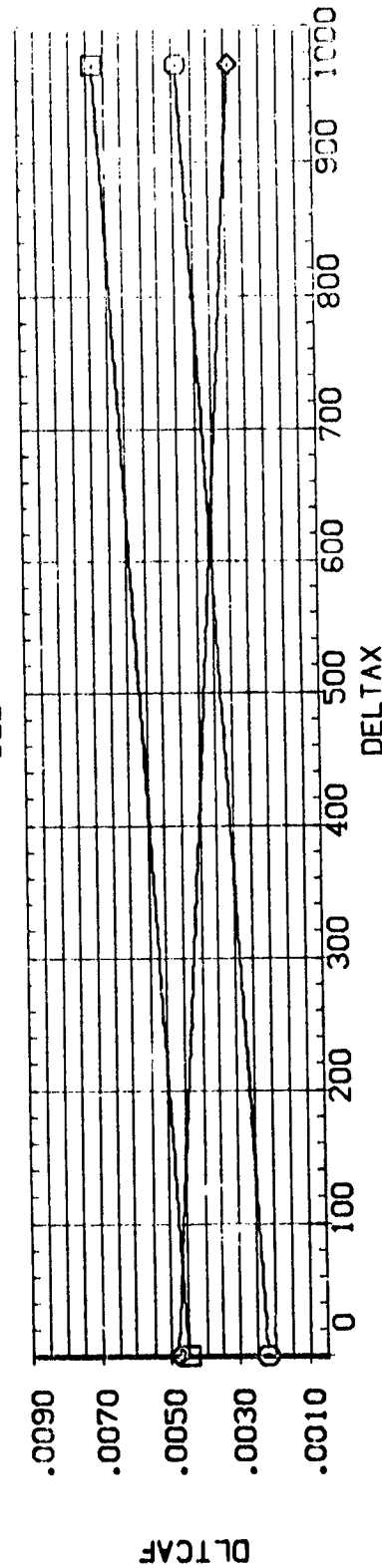
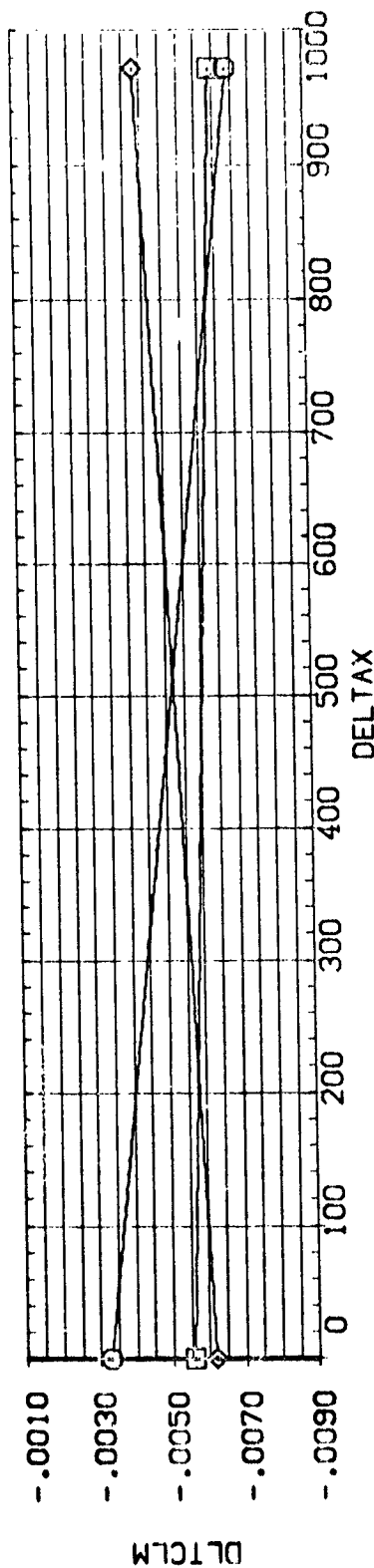
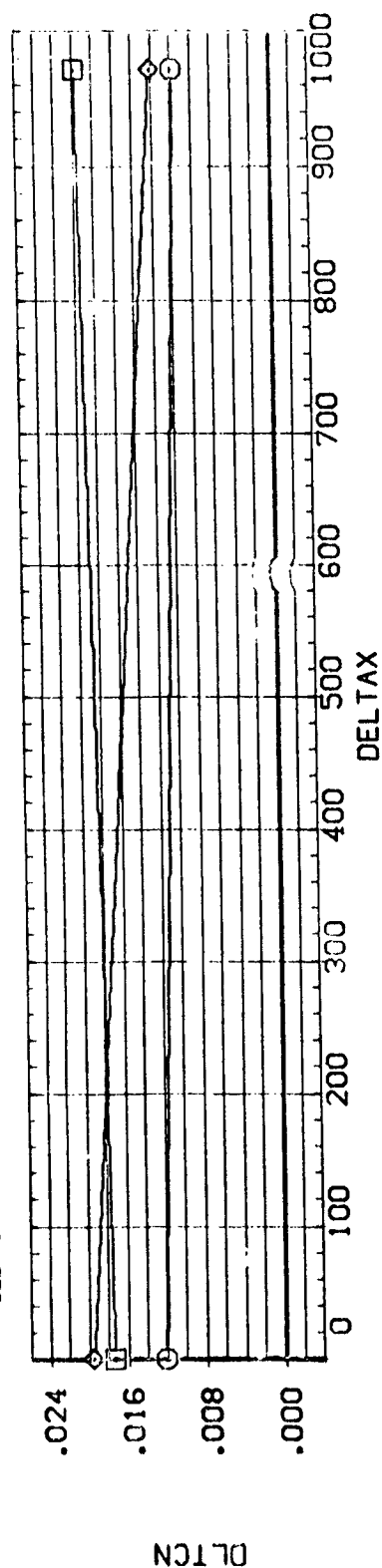
SYMBOL  
○  
□  
◇



ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK

# M571(1A6A) ORB (013) WITH TANK (19) SEPARATING (C85013)

| SYMBOL | DELTA Z | PARAMETRIC VALUES |         |         |         | DATA SOURCE |         | REFERENCE INFORMATION |           |           |       |
|--------|---------|-------------------|---------|---------|---------|-------------|---------|-----------------------|-----------|-----------|-------|
|        |         | ALPHA             | BETA    | DELTA Z | DELTA T | DELTA Z     | DELTA T | SREF                  | LREF      | BREF      | SCALE |
| □      | .000    | 2.000             | 4.950   | .000    | C85013  | .000        | C85014  | 2690.0000             | 1328.3000 | 1328.3000 | .000  |
| ○      | 162.000 | .000              | .000    | .000    | C85016  | 486.000     |         | 867.7000              | .000      | .000      | .000  |
| ◇      | 486.000 | 40.000            | DELTA Z | .000    |         |             |         | .000                  | .000      | .000      | .000  |
|        |         | DELTA Z           | DELTA T | .000    |         |             |         | .000                  | .000      | .000      | .000  |

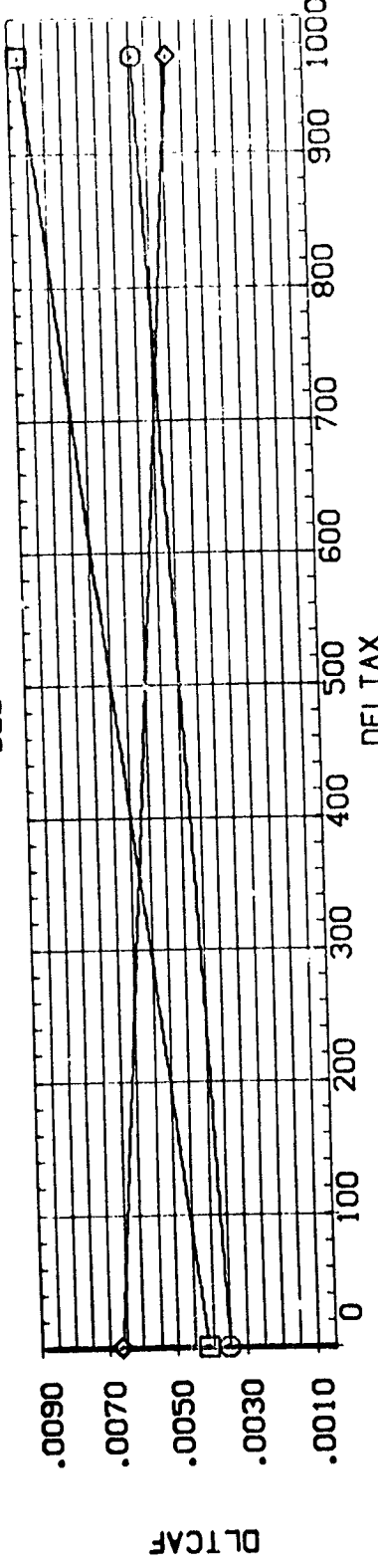
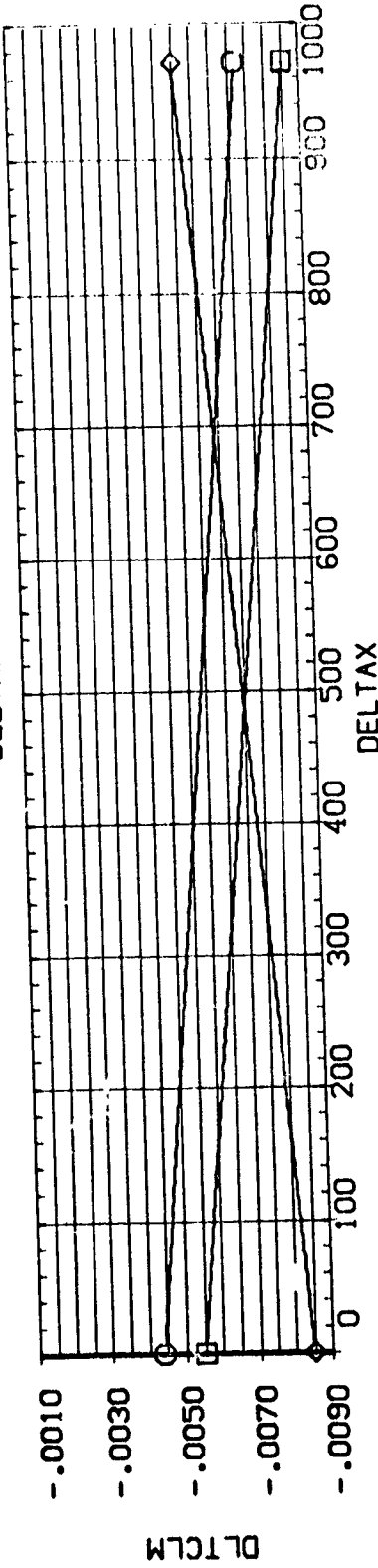
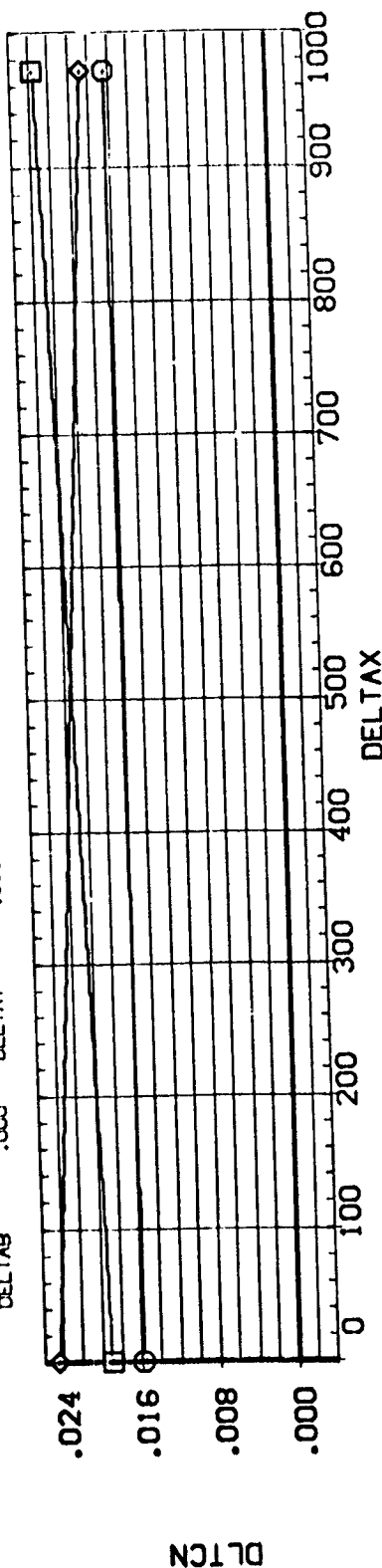


ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK



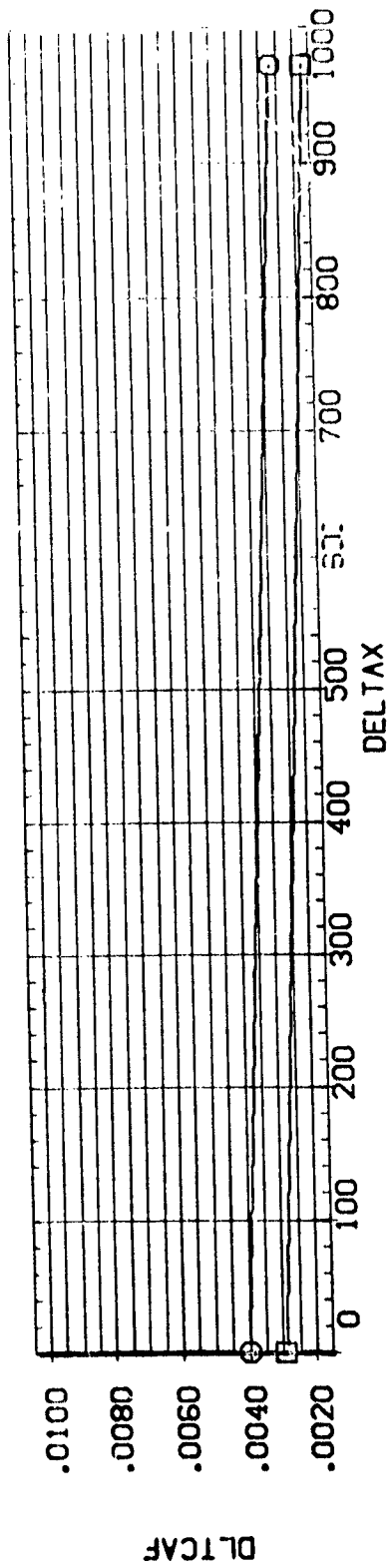
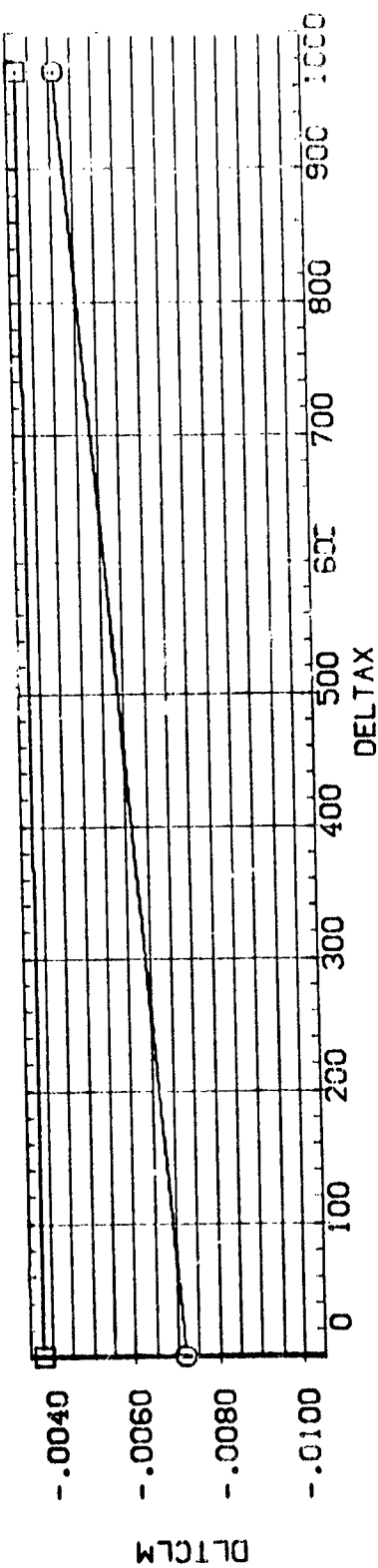
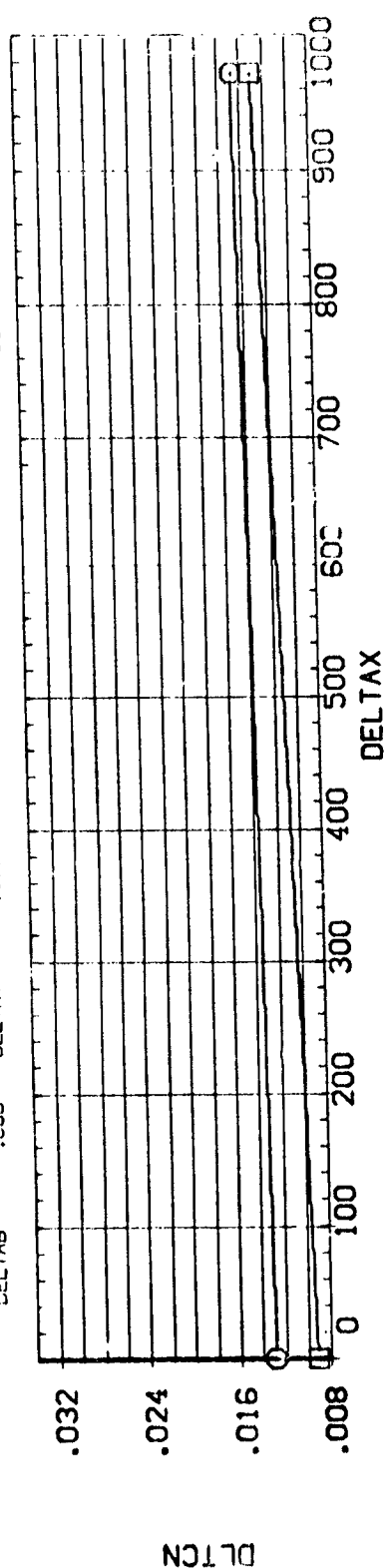
# M571(1A6A) ORB (013) WITH TANK (T9) SEPARATING (C85013)

| PARAMETRIC VALUES |         | DATA SOURCE |         | REFERENCE INFORMATION |        |
|-------------------|---------|-------------|---------|-----------------------|--------|
| SYMBOL            | DELTAZ  | DELTAZ      | DELTAZ  | SREF                  | SG.FT. |
| ○                 | .000    | .000        | .000    | LREF                  | IN.    |
| □                 | 162.000 | 10.000      | 486.000 | BREF                  | IN.    |
| ◇                 | 486.000 | .000        | .000    | YRRP                  | IN.    |
|                   | ATLRON  | .000        | .000    | ZRRP                  | IN.    |
|                   | RUDFLR  | 40.000      | .000    | SCALE                 | .0040  |
|                   | DELTAZ  | .000        | .000    |                       |        |



# M571(IA6A) ORB (013) WITH TANK (T9) SEPARATING (C85015)

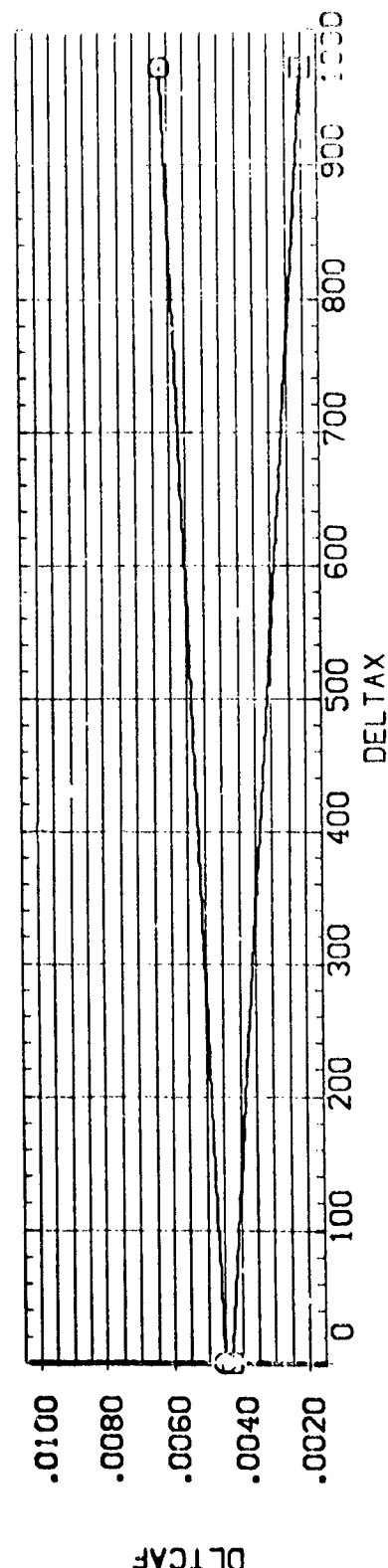
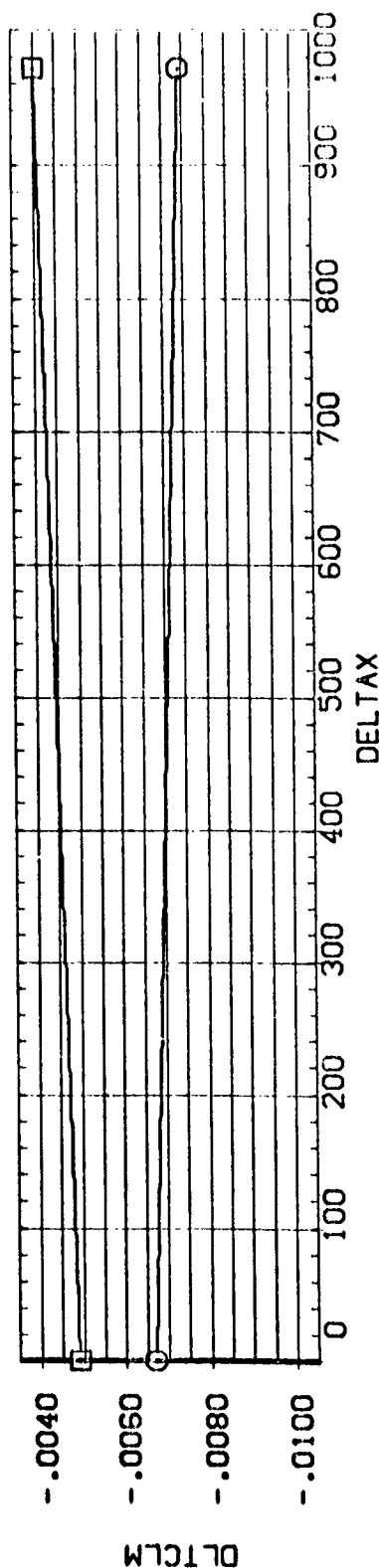
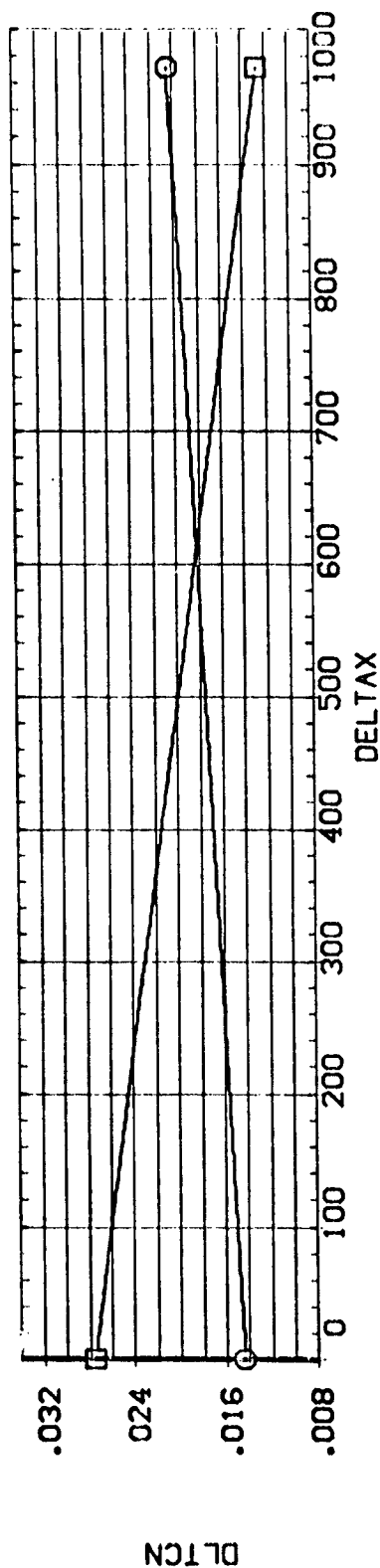
**PARAMETRIC VALUES**  
 DELTAZ 162.000 ALPHA -5.000  
 486.000 MACH 4.950  
 AILRON .000  
 RUDEFL 40.000  
 DELTAB .000  
 DELTAY .000  
 DELTAX .000  
 DELTAX 162.000  
 DATASET C85015  
 DATASET C85015  
 DELTAZ 486.000  
 SREF 2650.000  
 LREF 1328.000  
 BREF 1328.000  
 XMRP 867.000  
 YMRP .000  
 ZMRP .000  
 SCALE .0040  
**REFERENCE INFORMATION**  
 SQRT 17.0  
 IN 17.0  
 IN 17.0



ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK

571(IA6A) ORB (Q13) WITH TANK (T9) SEPARATING (C85015)

| SOURCE | DELTA Z | PARAMETRIC VALUES | DATA SOURCE | DELTA Z | REFERENCE INFORMATION    |
|--------|---------|-------------------|-------------|---------|--------------------------|
| ALPHA  | -2.000  | BETA              | .000        | DATASET | SREF 2690.0000<br>SQ.FT. |
| MACH   | 4.960   | DLTELV            | 10.000      | C85015  | LREF 1328.3000<br>IN:    |
| AIRLON | .000    | RUDCCR            | .000        |         | BREF 1328.3000<br>IN:    |
| RJOFRL | 40.000  | DELTAA            | 5.000       |         | XMRP 867.7000<br>IN:     |
| DELTAB | .000    | DELTAY            | .000        |         | YMRP .0000<br>IN:        |
|        |         |                   |             |         | ZMRP .0000<br>IN:        |
|        |         |                   |             |         | SCALE .0030<br>IN:       |



# ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK

\*\*\*\*\* ADD CODE WITH TANK (T9) SEPARATING (C85015)

| REFERENCE INFORMATION |      | SO. FT. |
|-----------------------|------|---------|
| 2690                  | 0000 | IN.     |
| 1328                  | 3000 | IN.     |
| 1328                  | 3000 | IN.     |
| 867                   | 7000 | IN.     |
|                       | 0000 | IN.     |
|                       | 0000 | IN.     |
|                       | 0040 | IN.     |

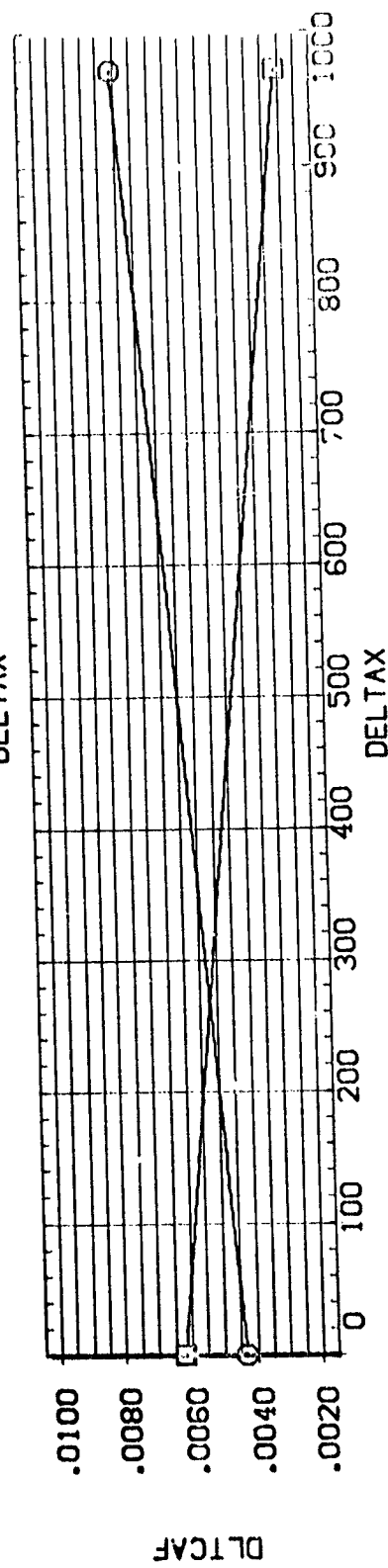
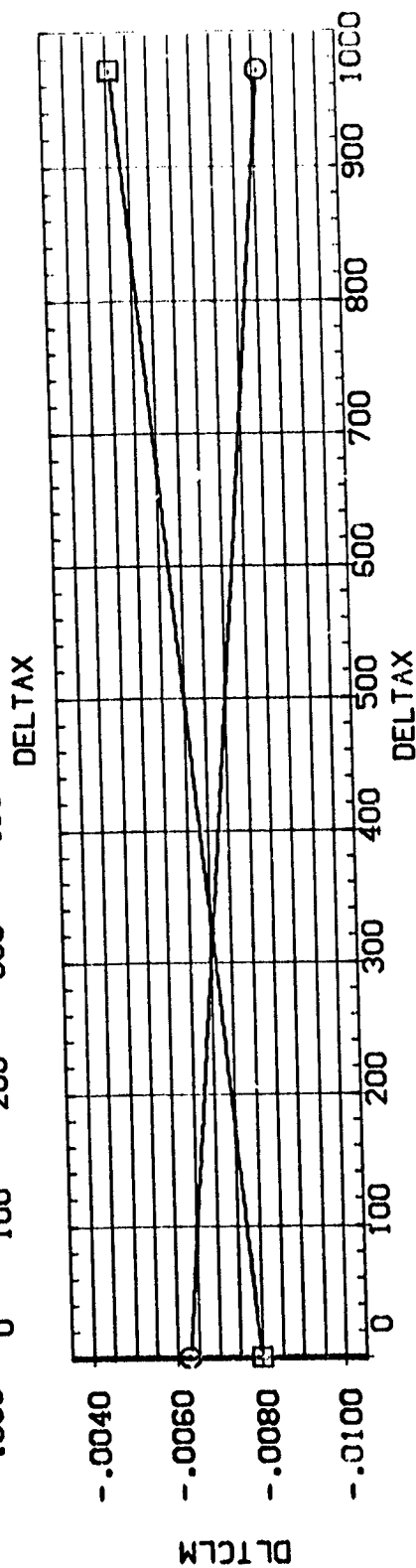
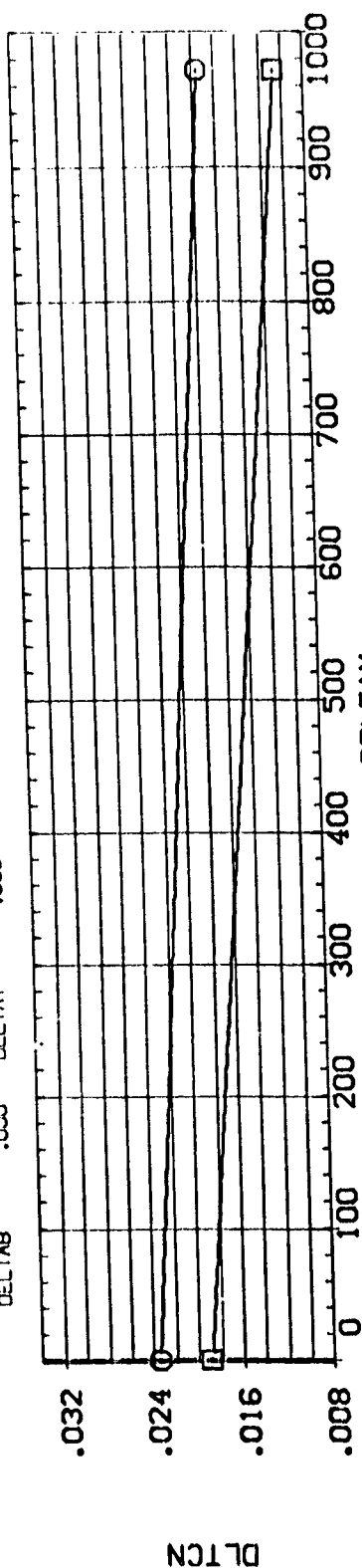
R  
SREF  
LREF  
BREF  
XMRP  
YMRP  
ZMRP  
SCALE

|             |         |
|-------------|---------|
| DATA SOURCE | DATASET |
| DELTAZ      | C850:7  |
| 162.000     |         |

| PARAMETRIC VALUES |        | DATASET |
|-------------------|--------|---------|
| .000              | BETA   | .000    |
| 4.960             | DLTCLV | 10.000  |
| .000              | RUDDER | .000    |
| 40.000            | DELTA  | 5.000   |
| .000              | DELTA  | .000    |

ALPHA  
MACH  
AILRON  
RUOFLR  
OELTAB

| SYMBOL | DELTA Z |
|--------|---------|
| □      | 162.000 |
| □      | 496.000 |

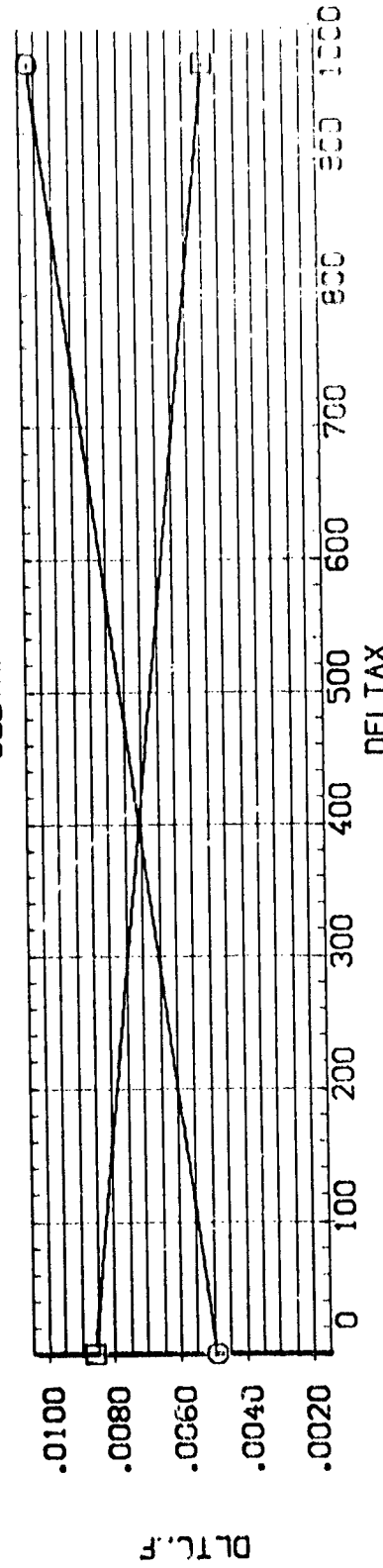
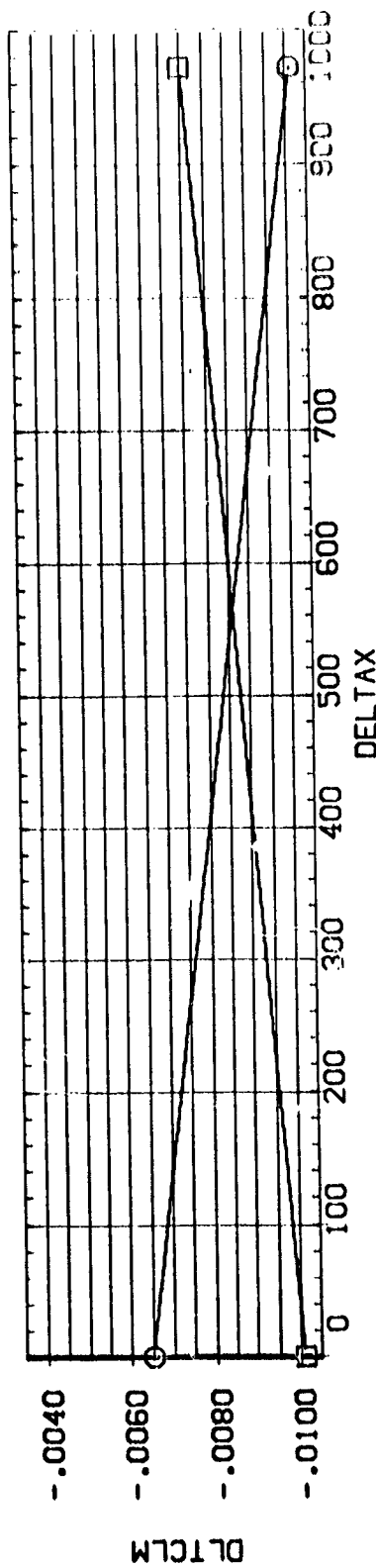
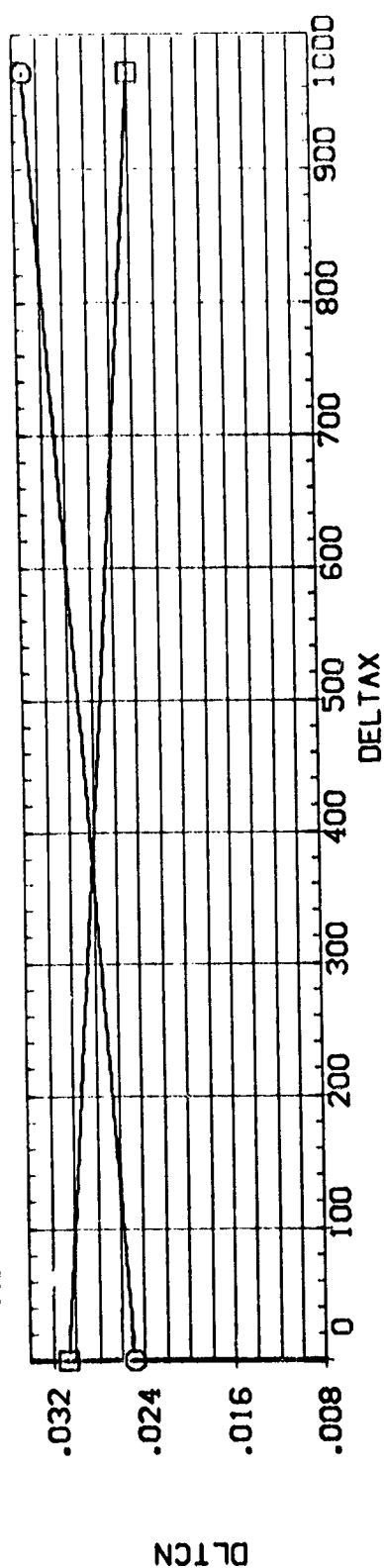


# ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK



# M571(1A6A) ORB (013) WITH TANK (T9) SEPARATING (C85015)

|        |         |         |        |                   |        |             |         |                       |           |
|--------|---------|---------|--------|-------------------|--------|-------------|---------|-----------------------|-----------|
| SYMBOL |         | DELTA Z |        | PARAMETRIC VALUES |        | DATA SOURCE |         | REFERENCE INFORMATION |           |
| □      | 162.000 | ALPHA   | 5.000  | BETA              | .000   | DATASET     | DELTA Z | SREF                  | 2650.0000 |
| □      | 486.000 | MACH    | 4.950  | DELTV             | 10.000 | C85015      | 162.000 | LREF                  | 1328.3000 |
|        |         | AIRRON  | .000   | RUDGER            | .000   |             |         | SREF                  | 1328.3000 |
|        |         | RUDFLR  | 40.000 | DELTA             | 5.000  |             |         | XREF                  | 667.0000  |
|        |         | DELTA   | .000   | DELTA             | .000   |             |         | YREF                  | .0000     |
|        |         |         |        |                   |        |             |         | ZREF                  | .0000     |
|        |         |         |        |                   |        |             |         | SCALE                 | .0010     |

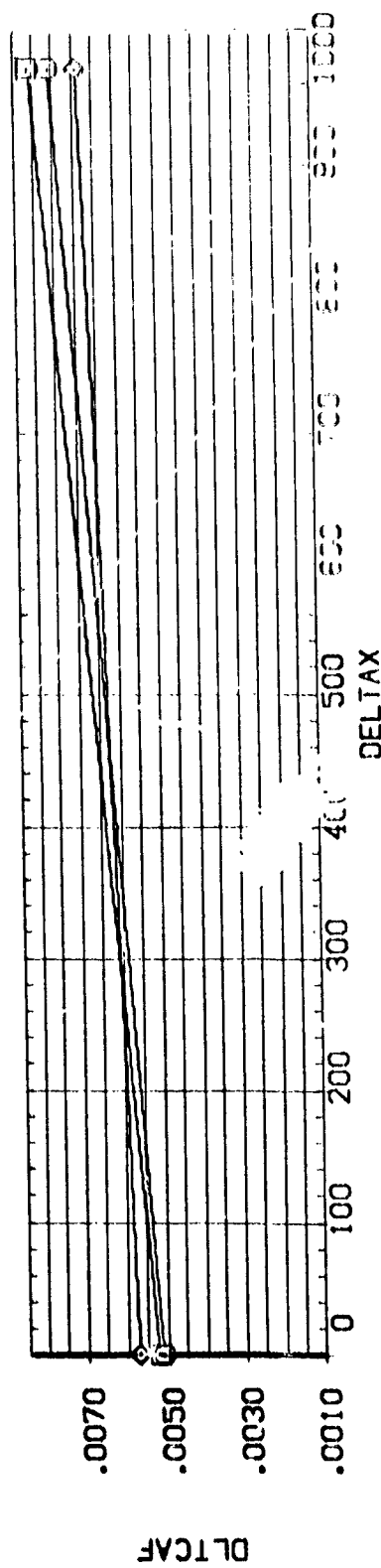
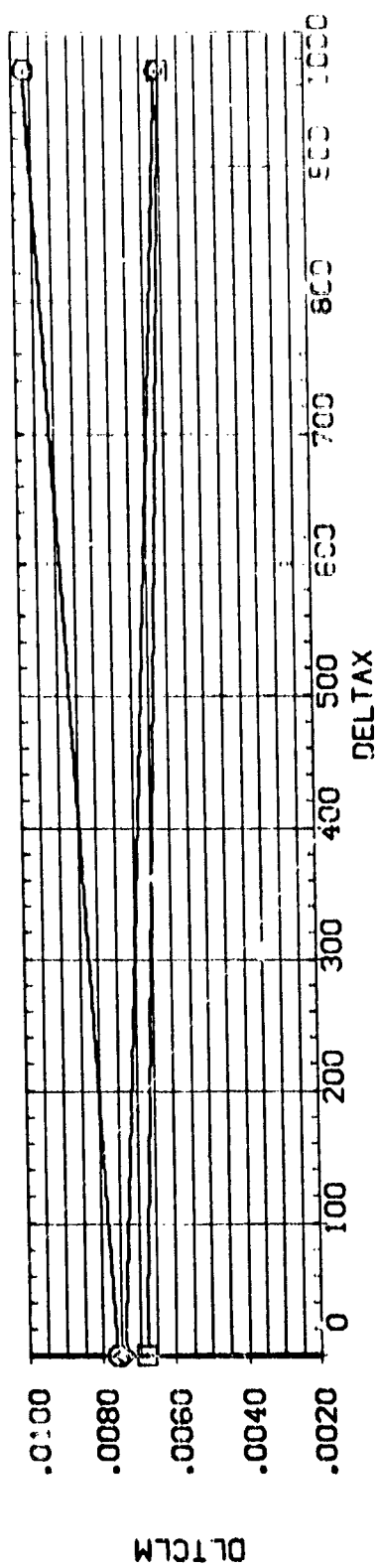
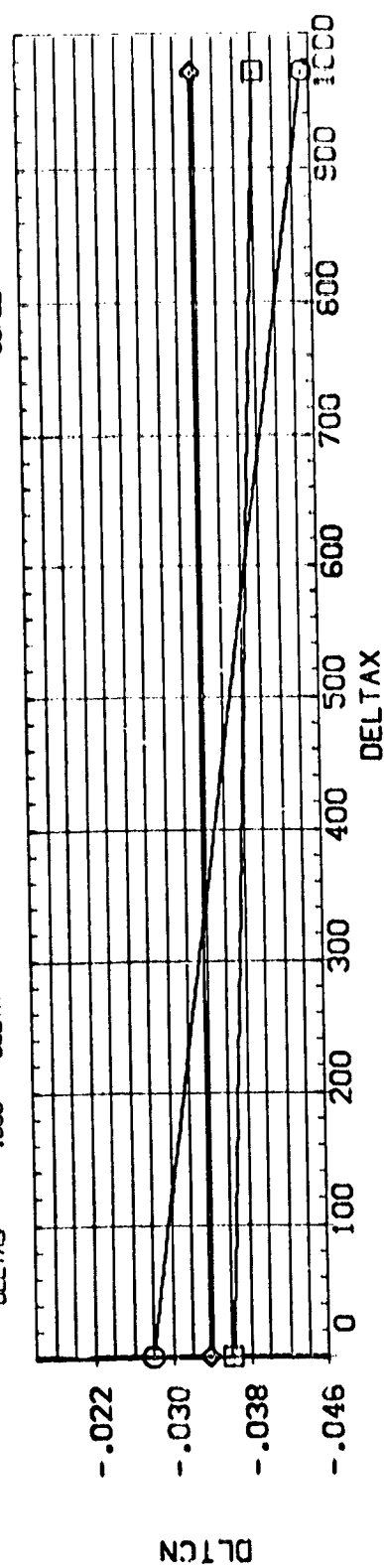


ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK



# M571(IAGAJ) ORB (013) WITH TANK (T9) SEPARATING (C85018)

| SYMBOL |         | DELTAZ |        | PARAMETRIC VALUES |         | DATA SOURCE |        | REFERENCE INFORMATION |           |
|--------|---------|--------|--------|-------------------|---------|-------------|--------|-----------------------|-----------|
| □      | DELTAZ  | .000   | ALPHA  | -5.000            | BETA    | .000        | DELTAZ | SREF                  | 2580.0000 |
| □      | 162.000 | MACH   | 4.960  | DL TELV           | -20.000 | .000        | DELTAZ | LREF                  | 1328.3000 |
| □      | 496.000 | AILRON | .000   | RUDDER            | .000    | .000        | DELTAZ | SREF                  | 1328.3000 |
| □      |         | RUDDLR | 40.000 | DELTAZ            | .000    | .000        | DELTAZ | YREF                  | 1328.3000 |
| □      |         | DELTAZ | .000   | DELTAZ            | .000    | .000        | DELTAZ | YREF                  | 1328.3000 |
| □      |         |        |        |                   |         |             | DELTAZ | ZREF                  | 1328.3000 |
| □      |         |        |        |                   |         |             | DELTAZ | SCALE                 | .0040     |



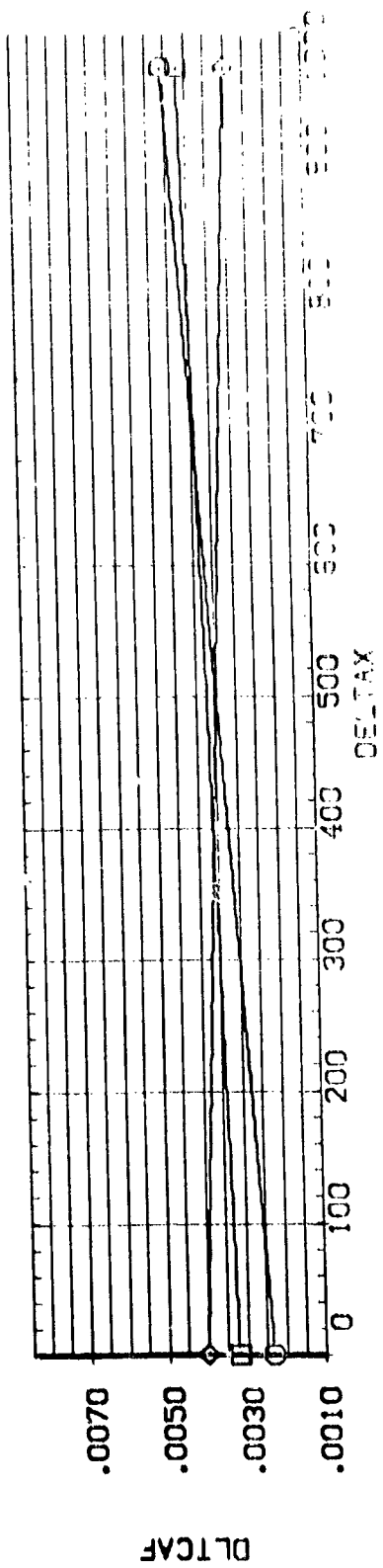
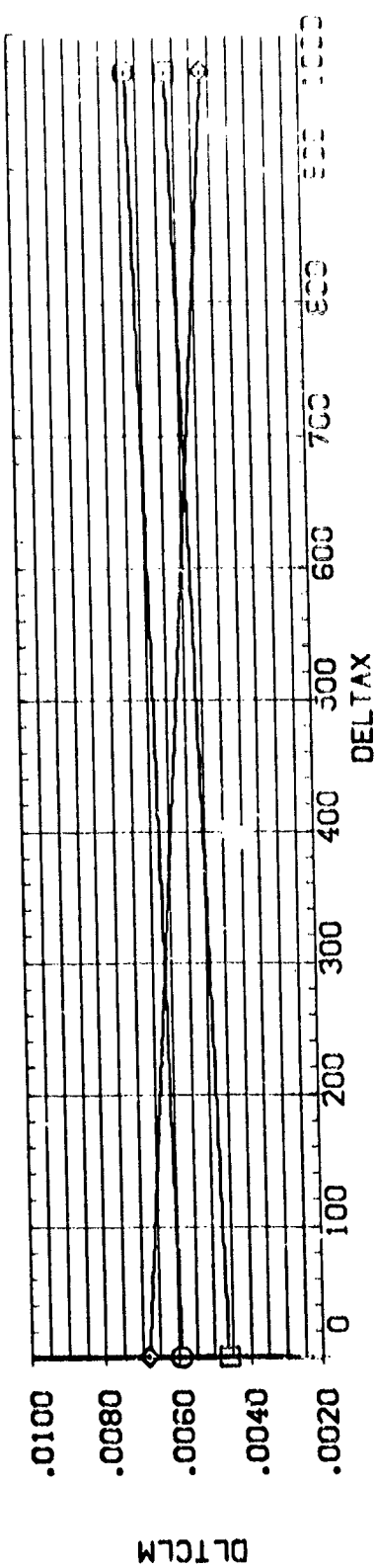
ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK





M571(1A6A) ORB (013) WITH TANK (T9) SEPARATING (C85C18)

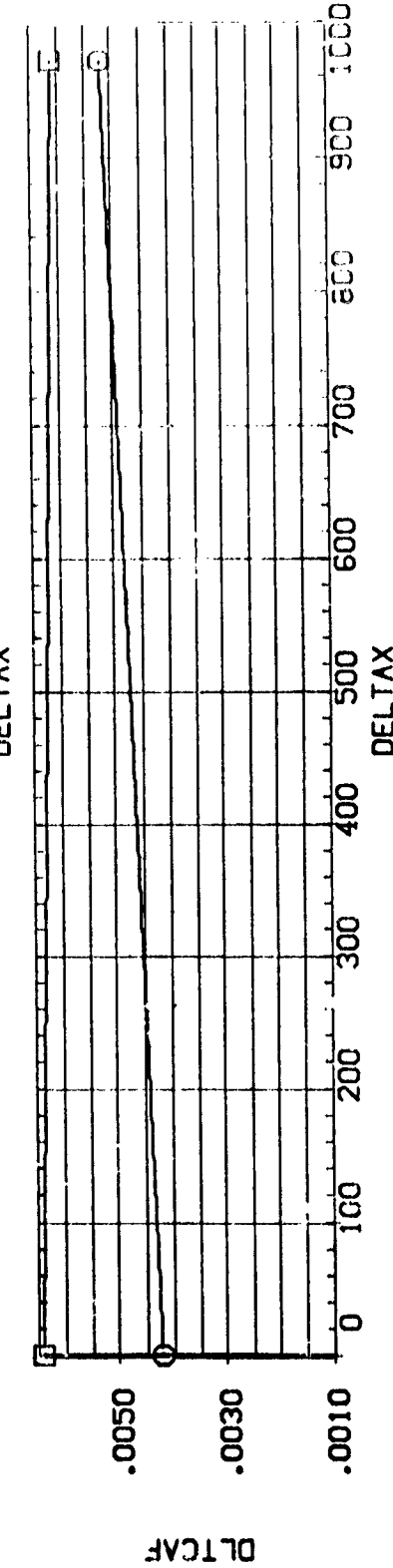
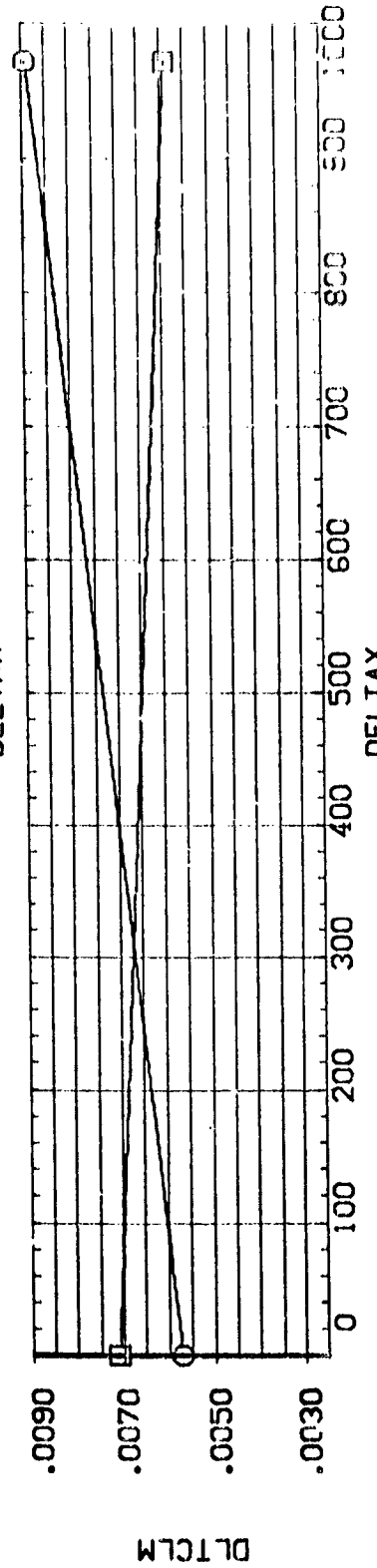
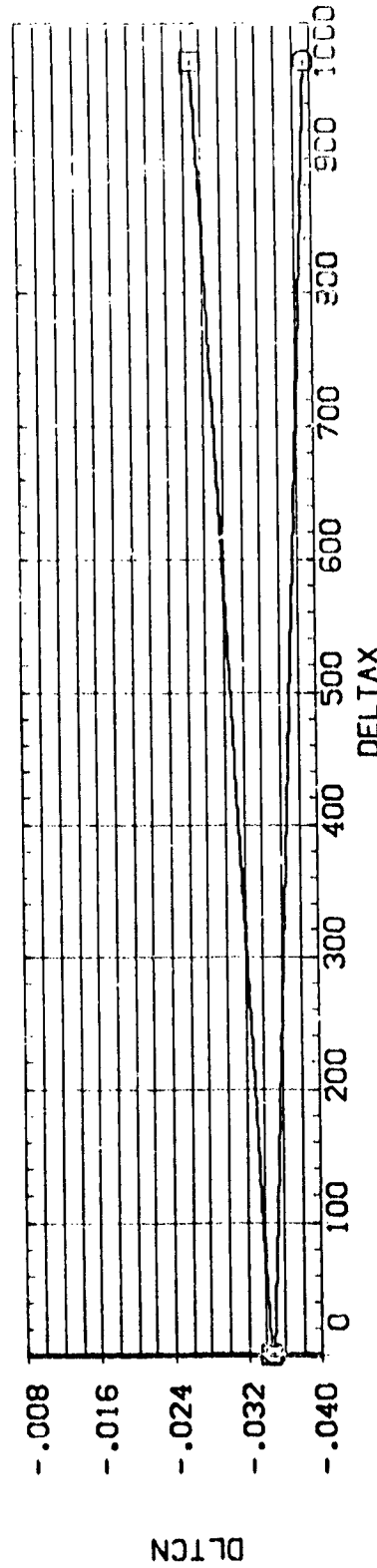
| SYMBOL |   | DELTA Z |         | PARAMETRIC VALUES |         | DATA SOURCE |         | DELTA Z |         | DELTA Z |         | SCALE |         | REFERENCE INFORMATION |        |
|--------|---|---------|---------|-------------------|---------|-------------|---------|---------|---------|---------|---------|-------|---------|-----------------------|--------|
| ◇      | ◇ | .000    | ALPHA   | .000              | BETA    | .000        | DATASET | .000    | DELTA Z | .000    | DELTA Z | .000  | DELTA Z | .000                  | SC.FT. |
| ◇      | ◇ | 162.000 | MACH    | 4.960             | DL TELV | -20.000     | C85C18  | .000    | DELTA Z | .000    | DELTA Z | .000  | DELTA Z | .000                  | SC.FT. |
| ◇      | ◇ | 486.000 | ATLRON  | .000              | RJODER  | .000        | C85C21  | .000    | DELTA Z | .000    | DELTA Z | .000  | DELTA Z | .000                  | SC.FT. |
| ◇      | ◇ |         | RJOFIR  | 40.000            | DELTA Z | .000        |         | .000    | DELTA Z | .000    | DELTA Z | .000  | DELTA Z | .000                  | SC.FT. |
| ◇      | ◇ |         | DELTA Z | .000              | DELTA Z | .000        |         | .000    | DELTA Z | .000    | DELTA Z | .000  | DELTA Z | .000                  | SC.FT. |







AIRCRAFT .000 RUGGER .000  
 RUGGER 40.000 DELTAX 5.000  
 DELTAX .000 DELTAY .000  
 SCALE



ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK

# M571(1A6A) ORB (013) WITH TANK (T9) SEPARATING [C85020]

REFERENCE INFORMATION  
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 1328.3000 IN.  
 1328.3000 IN.  
 557.7000 IN.  
 2000 IN.  
 2000 IN.  
 2040

DATA SOURCE

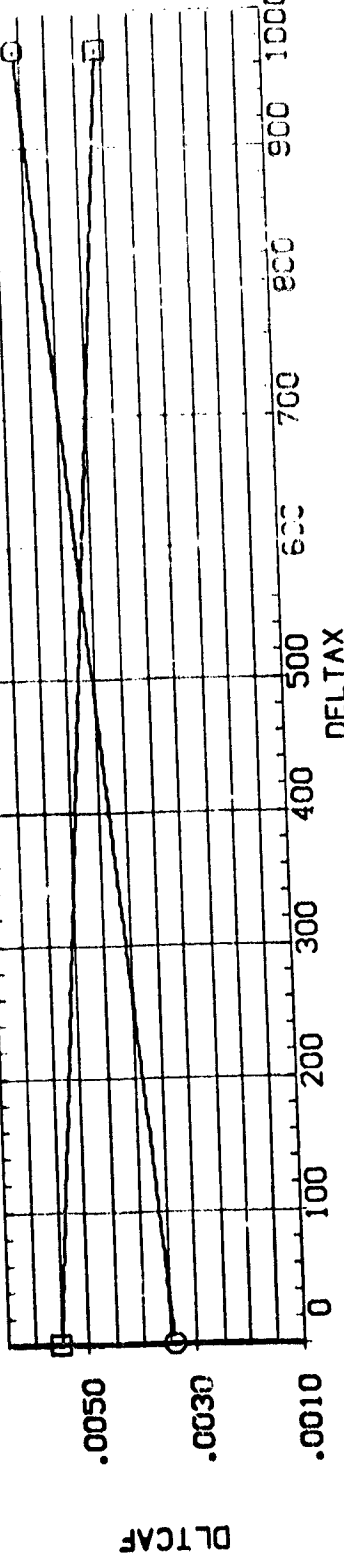
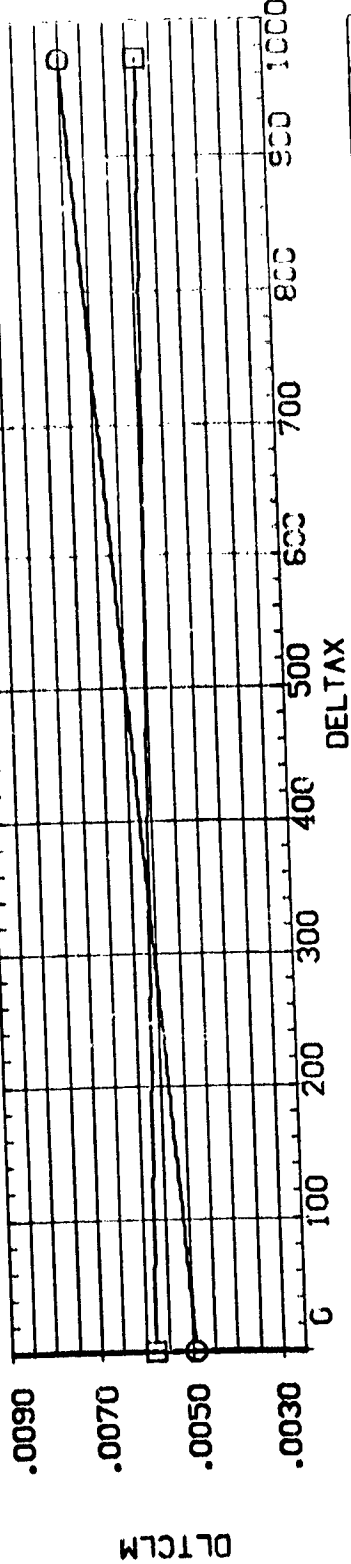
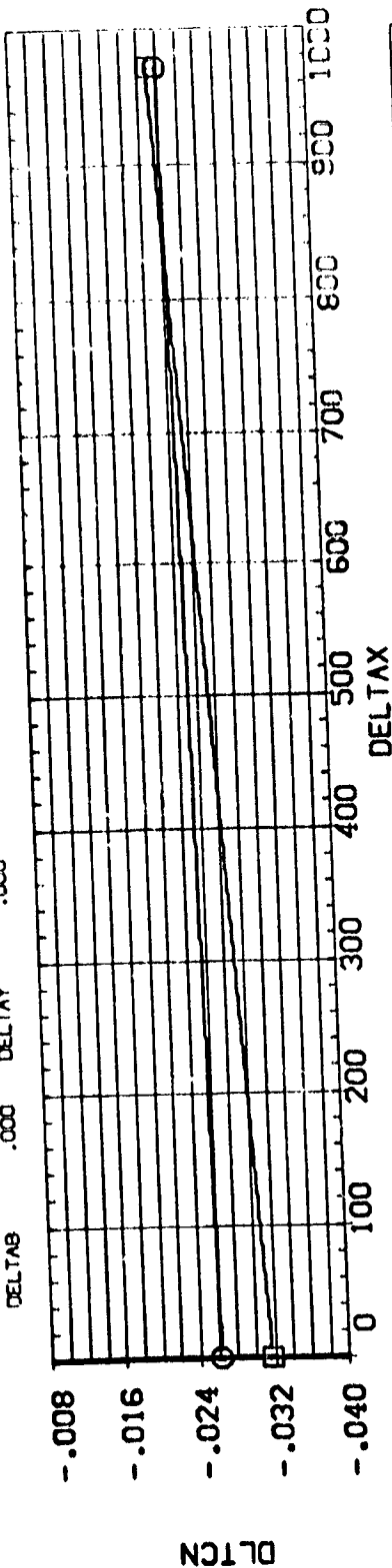
DELTAZ 162.000

DATASET C85020

PARAMETRIC VALUES  
 BETA -2.000  
 DELTAV 4.950  
 RUDDER .000  
 DELTAA 40.000  
 DELTAY .000

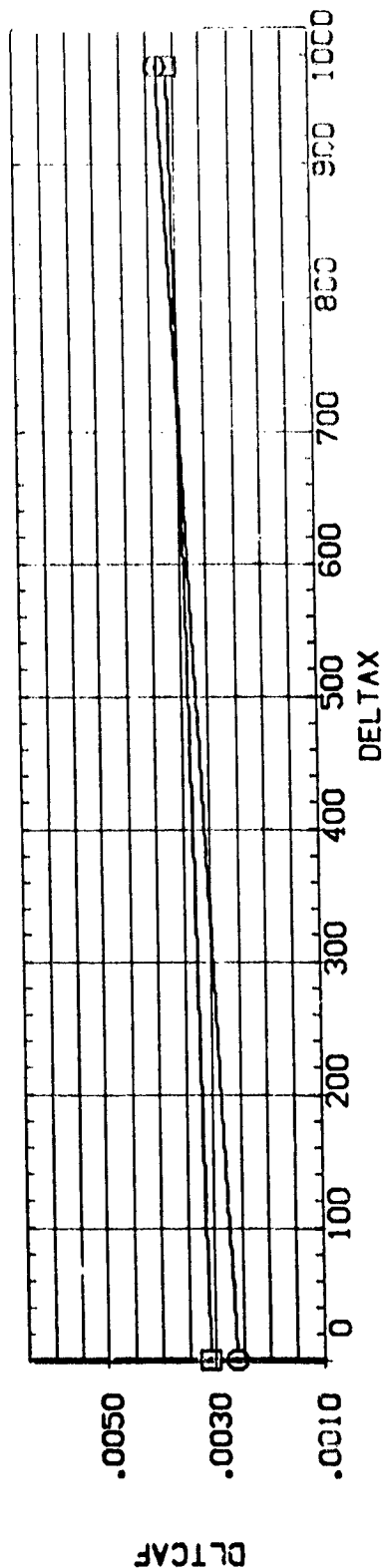
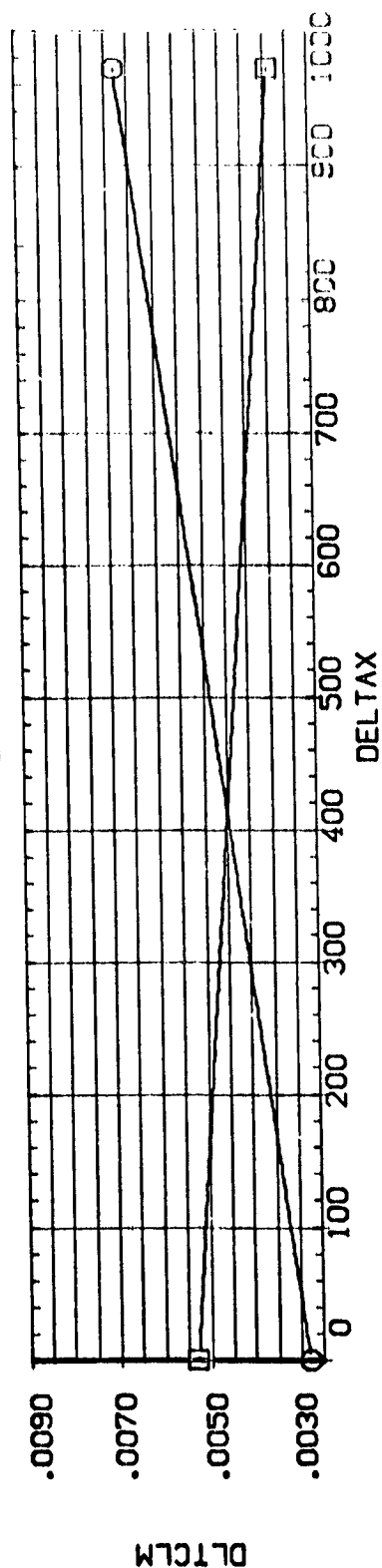
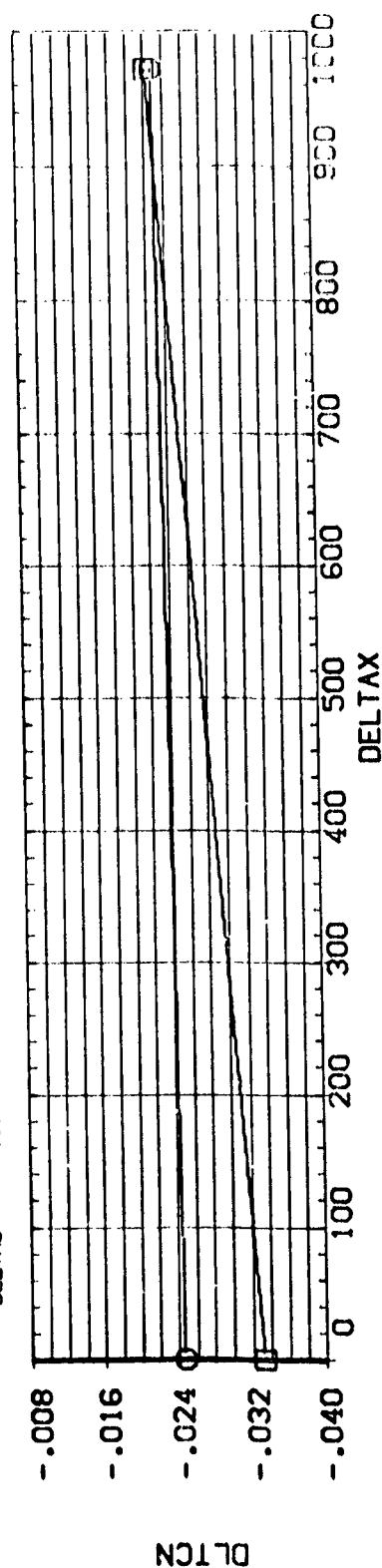
DELTAZ 162.000  
 ALPHA 486.000  
 MACH 486.000  
 AIRLON .000  
 RUDDER 40.000  
 DELTAB .000

SYMBOL  
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ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK

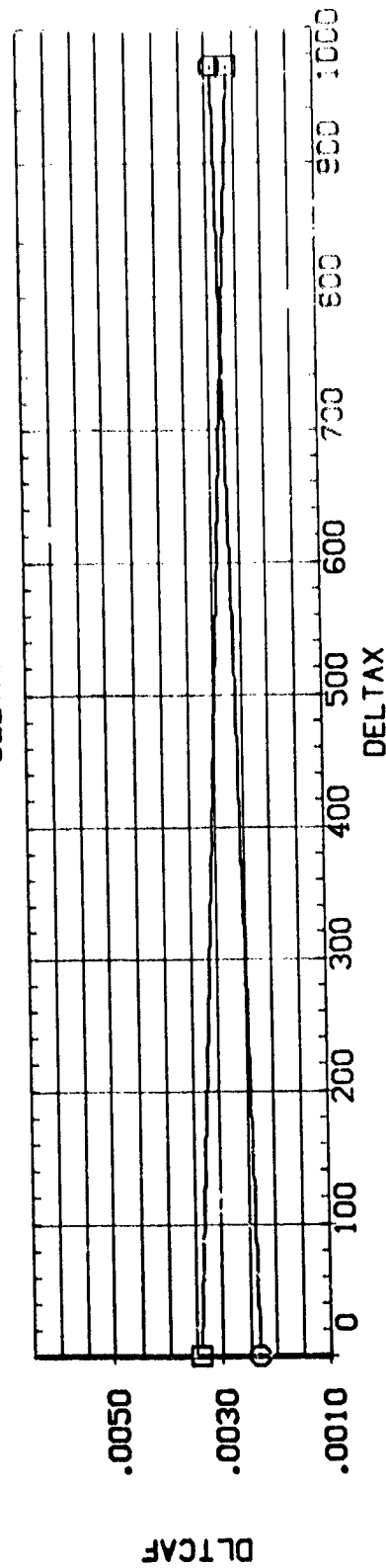
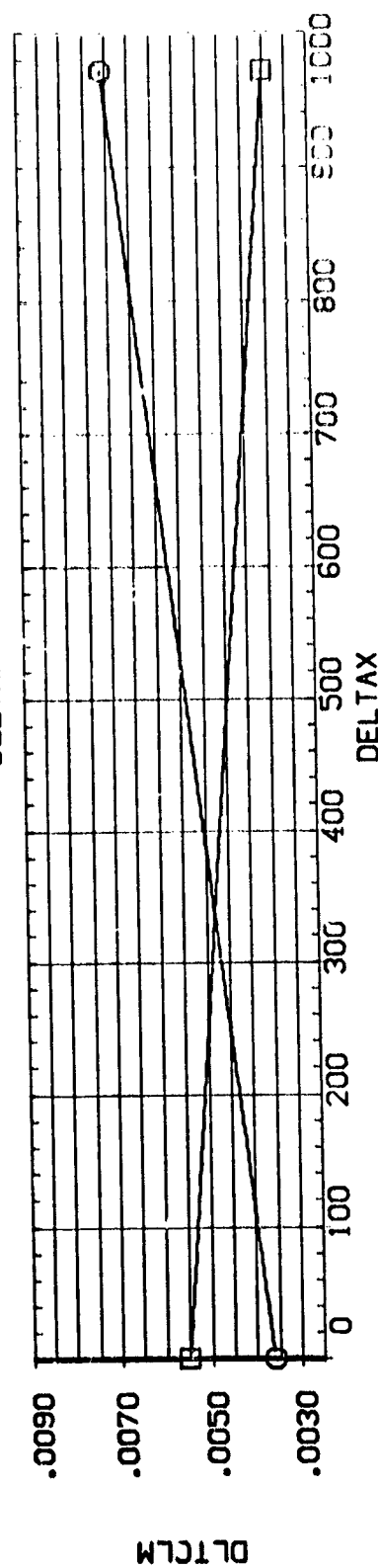
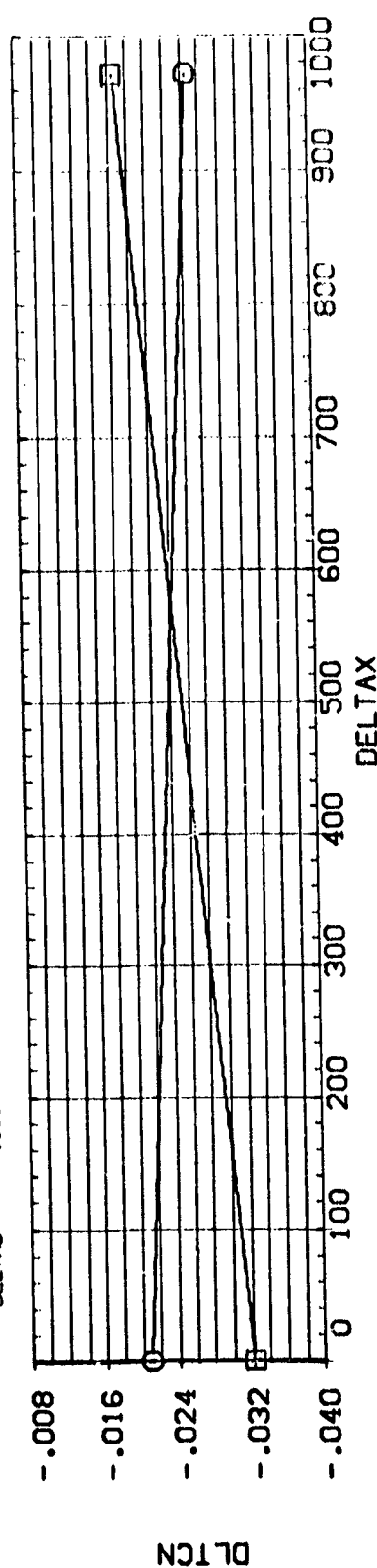
| SYNOPSIS |         | PARAMETRIC VALUES |        | DATA SOURCE |         | REFERENCE INFORMATION |         |
|----------|---------|-------------------|--------|-------------|---------|-----------------------|---------|
| DELTA Z  | DELTA Z | ALPHA             | BETA   | DATASET     | DELTA Z | SPEC                  | SG.F.T. |
| 152.000  | 152.000 | MACH              | 4.950  | -20.000     | 162.000 | LRFF                  | 3328    |
| 486.000  | 486.000 | ATLRON            | .000   | .000        |         | ELFF                  | 3328    |
|          |         | RJOF LR           | 40.000 | 5.000       |         | XREP                  | 3328    |
|          |         | DELTA B           | .000   | .000        |         | YREP                  | 3328    |
|          |         | DELTA C           | .000   | .000        |         | ZREP                  | 3328    |
|          |         | DELTA D           | .000   | .000        |         | SCALE                 | 3328    |



# ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK

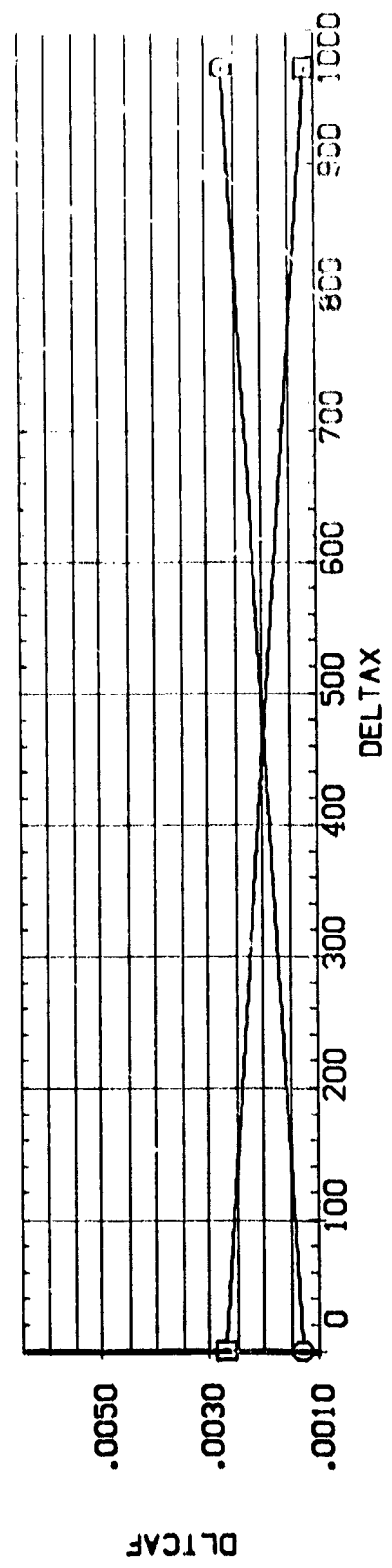
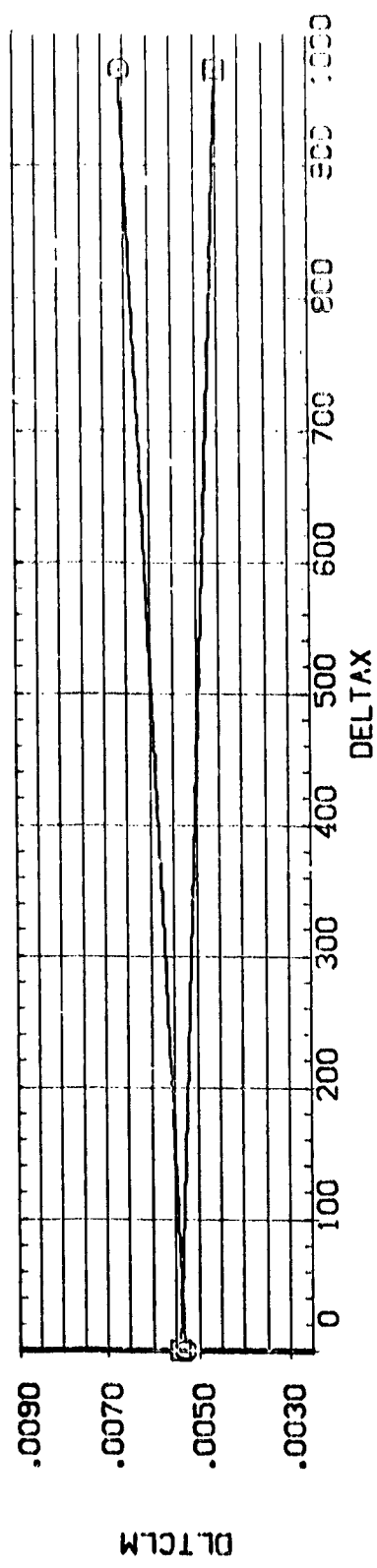
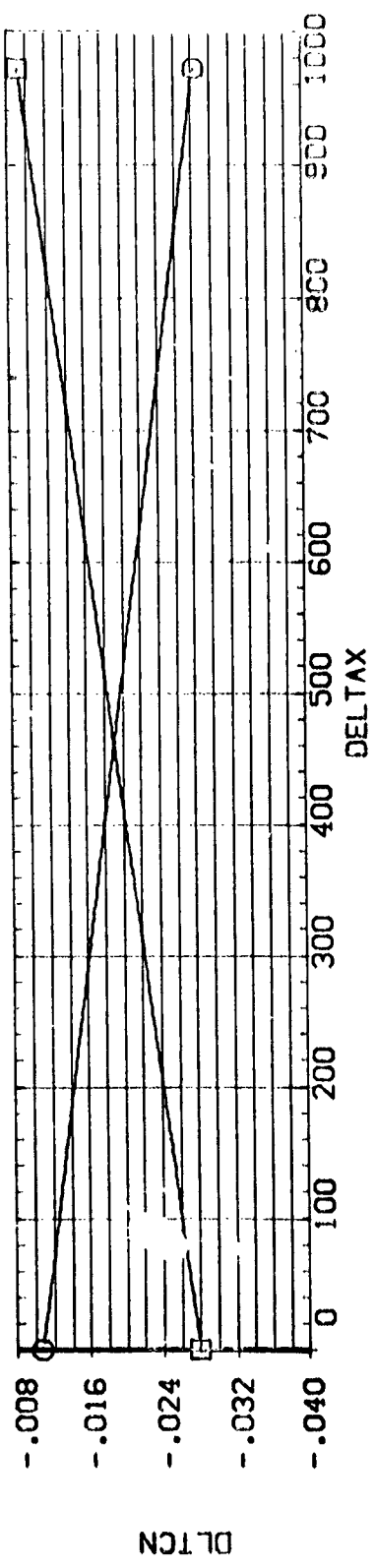
# M571(1A6A) ORB (013) WITH TANK (T9) SEPARATING (C85020)

|        |         |         |        |                   |         |             |         |                       |           |
|--------|---------|---------|--------|-------------------|---------|-------------|---------|-----------------------|-----------|
| SYMBOL |         | DELTA Z |        | PARAMETRIC VALUES |         | DATA SOURCE |         | REFERENCE INFORMATION |           |
| ○      | 162.000 | ALPHA   | 2.000  | BETA              | .000    | DATASET     | DELTA Z | SREF                  | 2650.0000 |
| □      | 486.000 | MACH    | 4.950  | DELTV             | -20.000 | C85020      | 162.000 | LRFF                  | 1328.3000 |
|        |         | AILRON  | .000   | RJDOER            | .000    |             |         | SRFF                  | 1328.3000 |
|        |         | RJDFLR  | 40.000 | DELTA             | 5.000   |             |         | XREF                  | 1327.0000 |
|        |         | DELTA8  | .000   | DELTA             | .000    |             |         | YREF                  | 1327.0000 |
|        |         |         |        | DELTA             | .000    |             |         | YREF                  | 1327.0000 |
|        |         |         |        |                   |         |             |         | SCALE                 | .0010     |



ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK

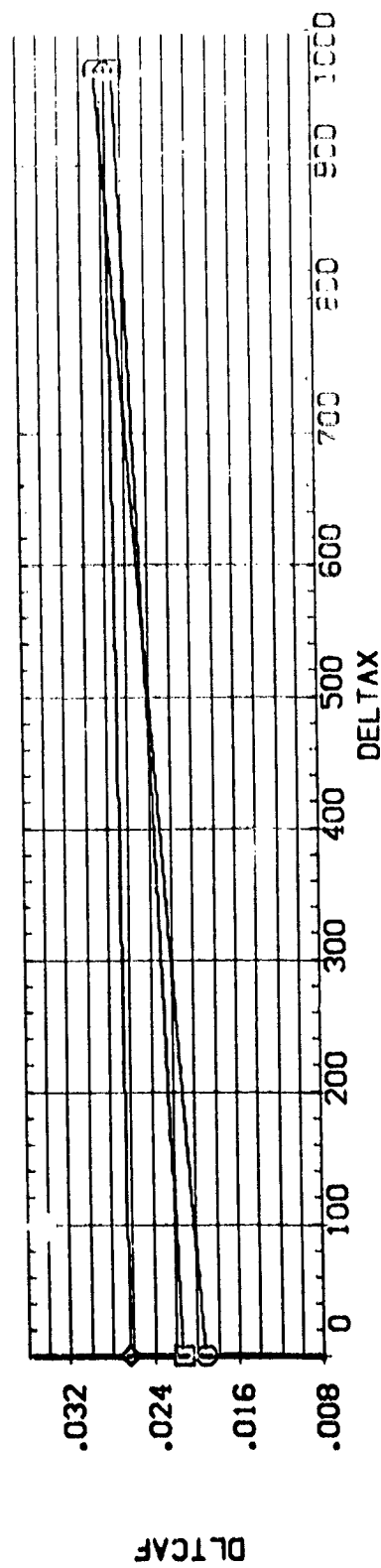
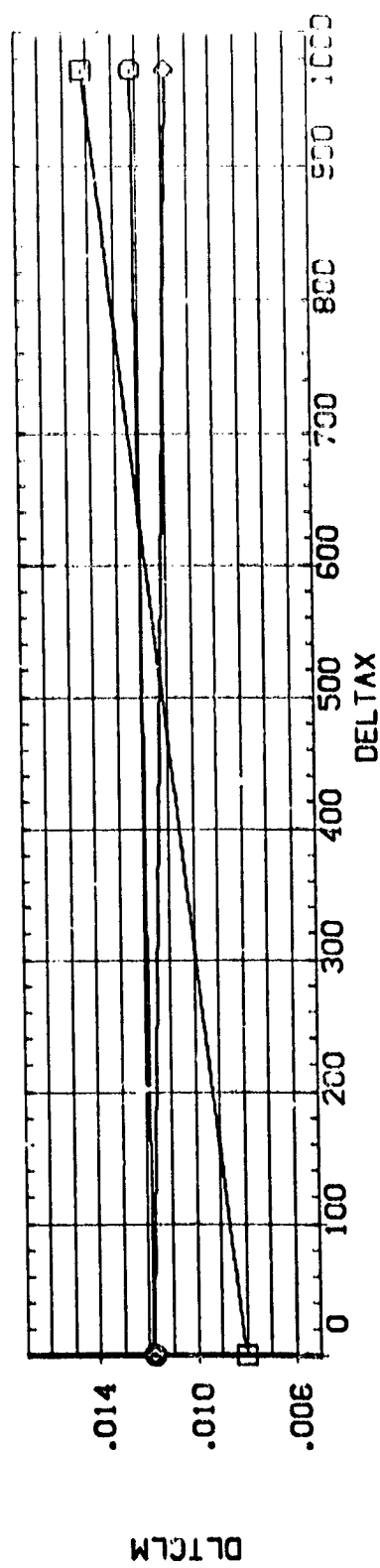
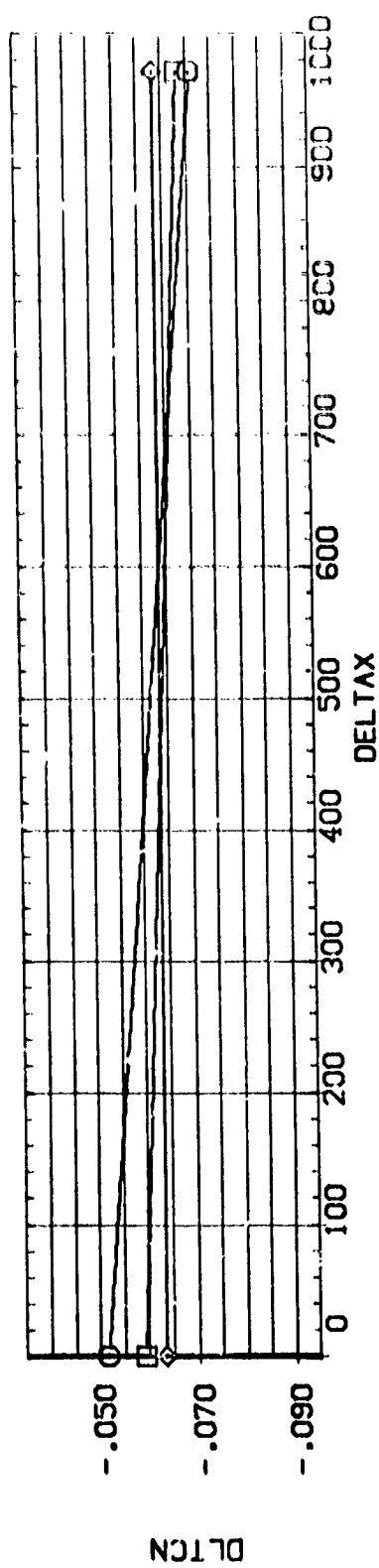
SYMBOL DELTAZ 162.000 ALPHA 5.000 BETA 5.000  
 486.000 MACH 4.360 DL TELV -20.000 DATASET .000 DATASET .000  
 AILRON .000 RLODER .000 C85020 C85022 DELTAZ 486.000  
 RUOFLR 40.000 DELTAA 5.000 V000 V000  
 DELTAB .000 DELTAY .000 SCALE 10000



ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK



| SYMBOL                                     | DELTA Z | PARAMETRIC VALUES | CARD SOURCE                          |
|--------------------------------------------|---------|-------------------|--------------------------------------|
| <input type="radio"/> ALPHA                | .000    | -2.000 BETA       | DELTA Z .000 DATASET .000 SCALE .000 |
| <input type="checkbox"/> MACH              | 162.000 | 4.960 DL TELV     | .000 C85023 .000 C85024 .000         |
| <input checked="" type="checkbox"/> AIRLON | 496.000 | .000 RUDDER       | .000 C85024 .000 C85024 .000         |
| <input type="checkbox"/> RJDFLR            |         | 40.000 DELTAA     | .000 .000 .000 .000                  |
| <input type="checkbox"/> DELTAB            |         | .000 DELTAY       | .000 .000 .000 .000                  |

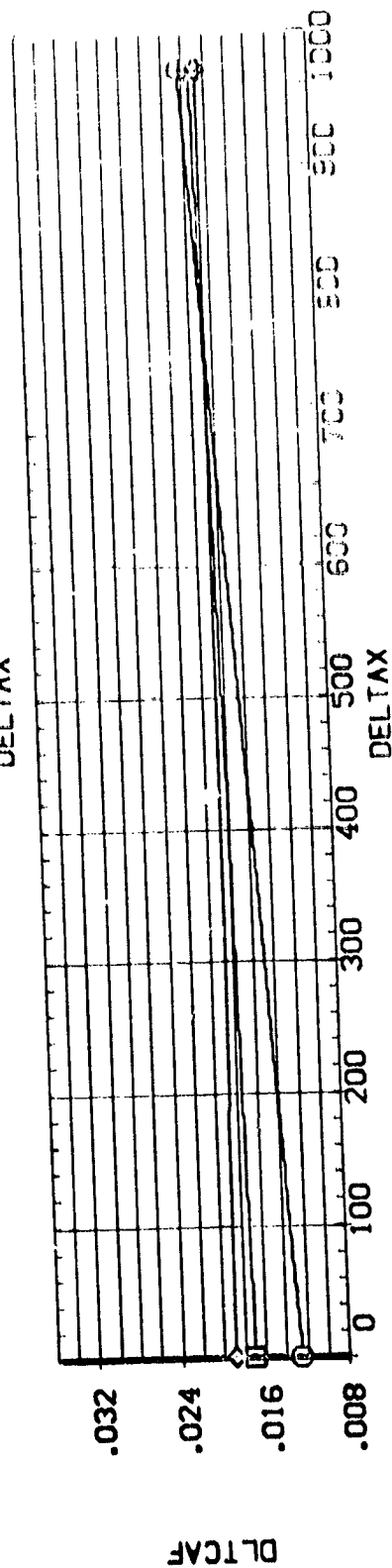
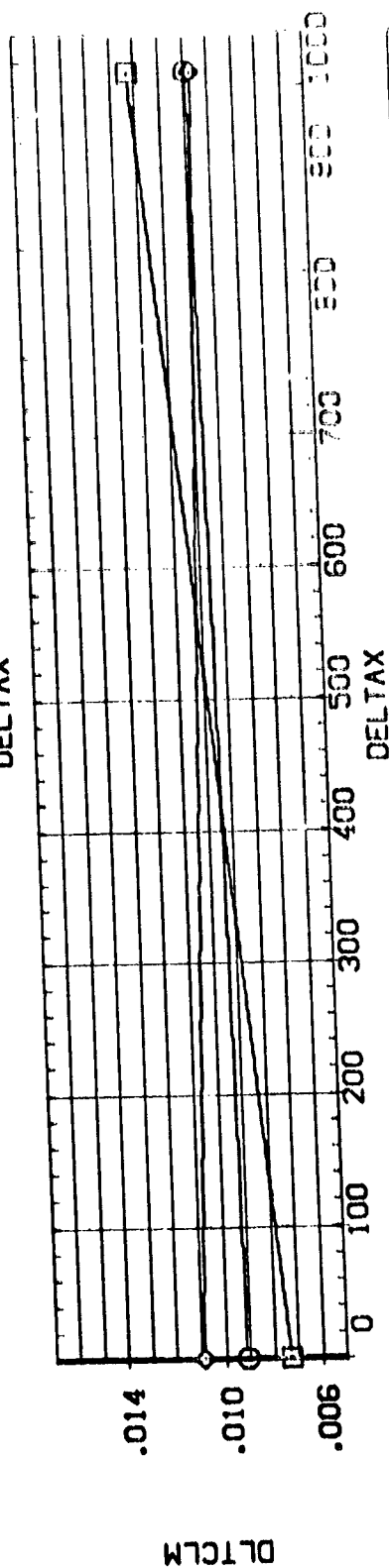
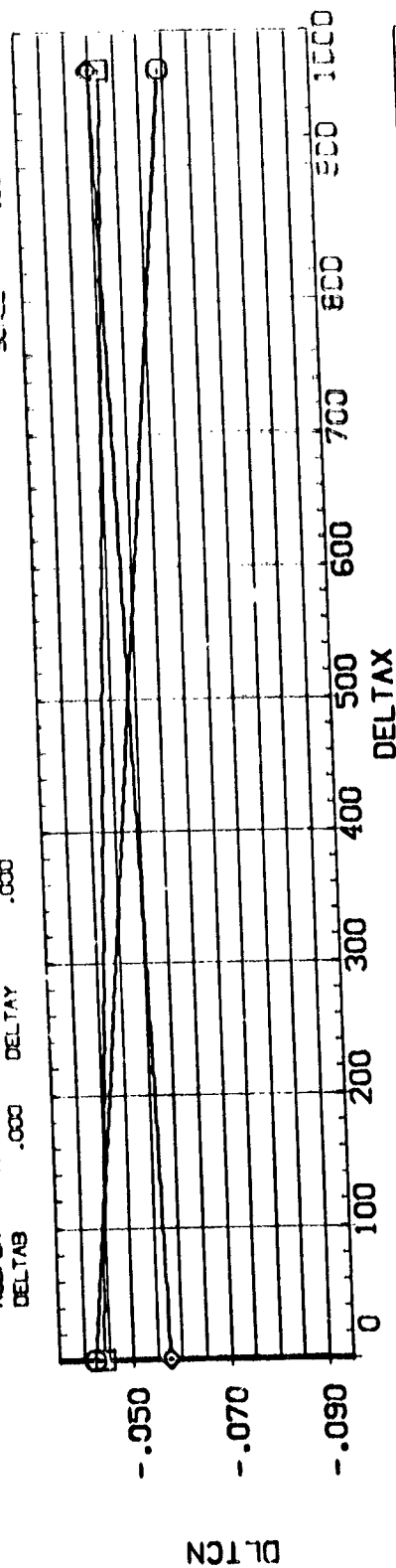


ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK



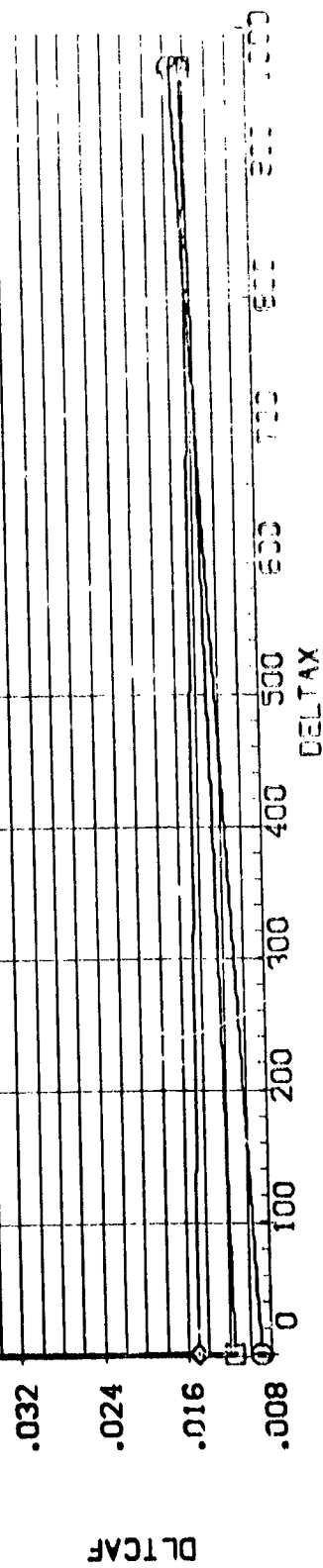
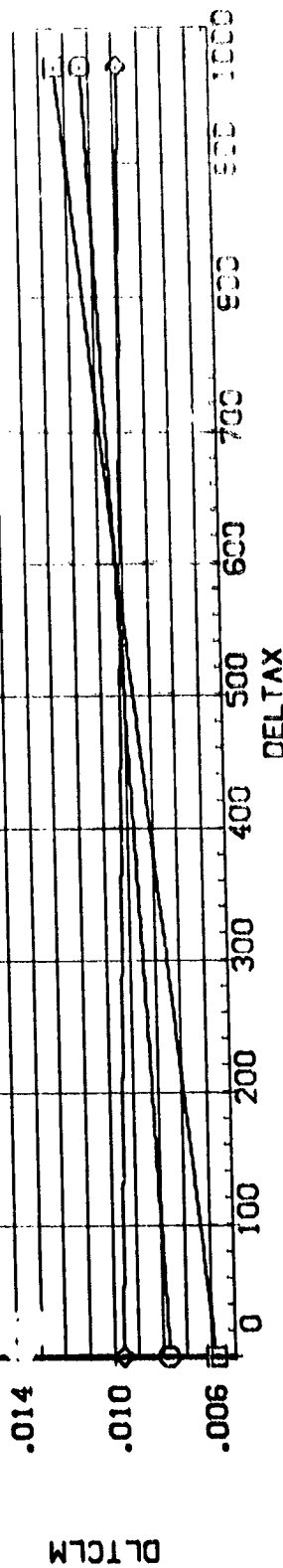
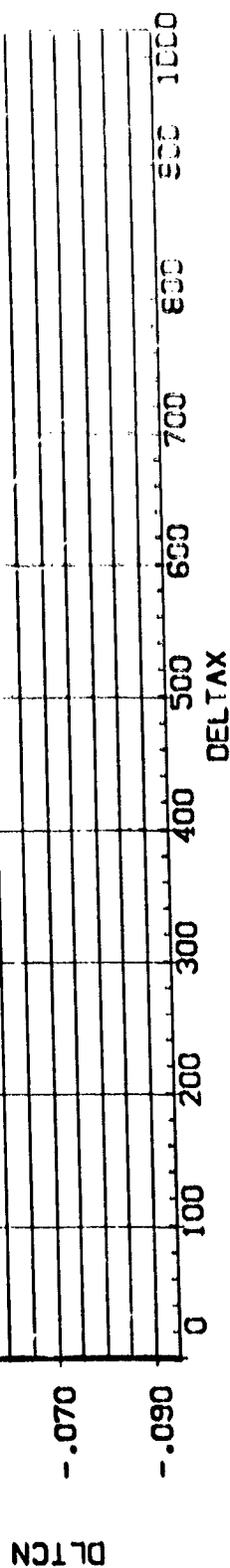
(C85923)

ALL INFORMATION CONTAINED  
HEREIN IS UNCLASSIFIED  
DATE 08-27-2009 BY 60322



ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK

M571(1A6A) ORB (013) WITH TANK (T9) SEPARATING (C85023)

[illegible]

ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL-

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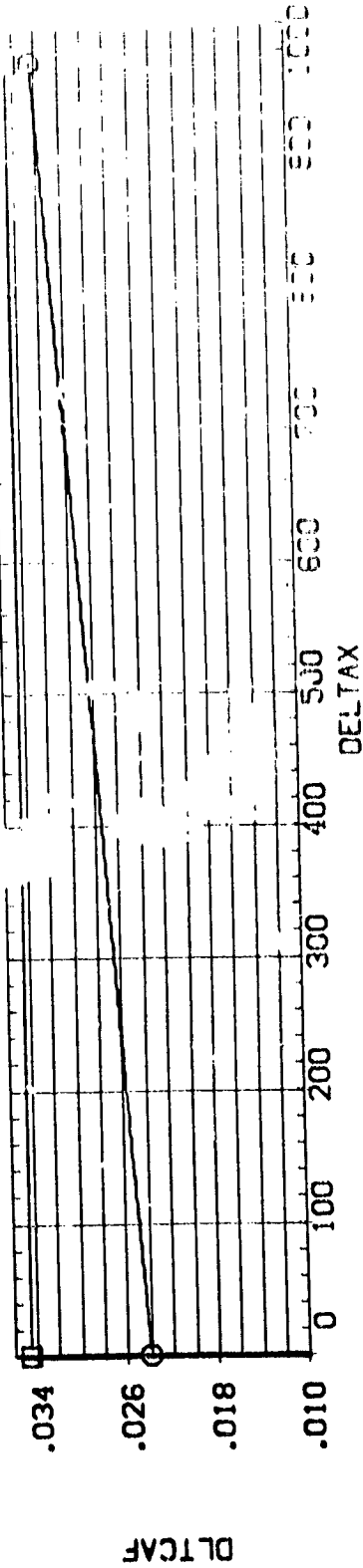
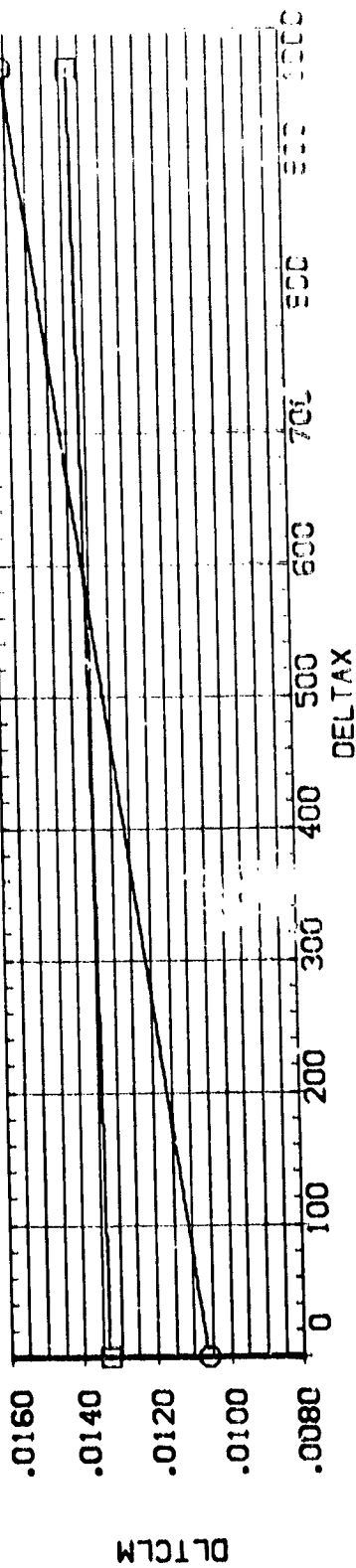
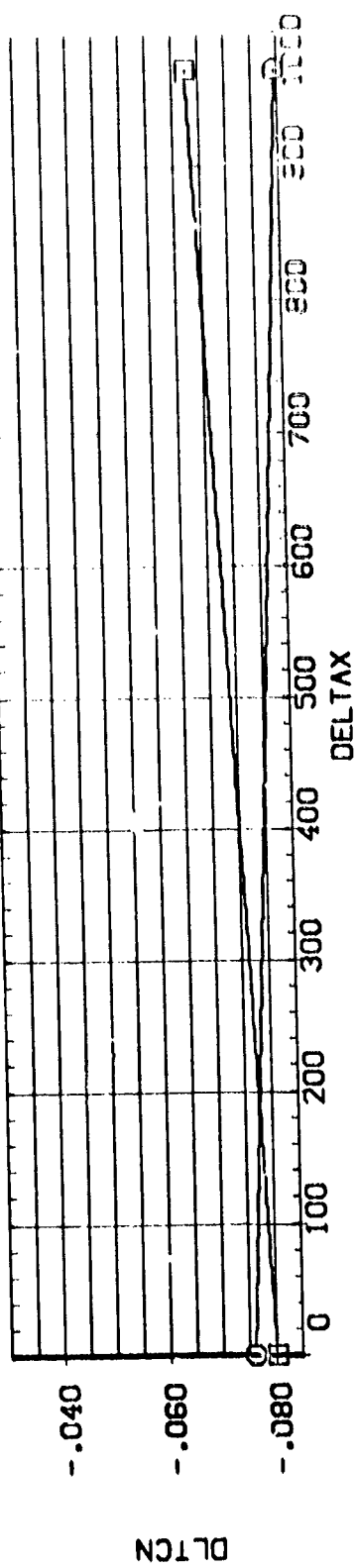
SYNOPSIS

ALPHA  
MACH  
AIRBORNE  
REJOEF  
DELTA

| PARAMETRIC VALUES |
|-------------------|
| BETA              |
| -5.000            |
| DLTCLV            |
| 4.950             |
| RUDDER            |
| .000              |
| DELTAA            |
| 40.000            |
| DELTAY            |
| .000              |

|         | DATASET |
|---------|---------|
| .000    | C85C25  |
| -40.000 |         |
| .000    |         |
| 5.000   |         |
| .000    |         |

DATA SOURCE  
DELTA Z  
162.000  
DATASET  
CBS027

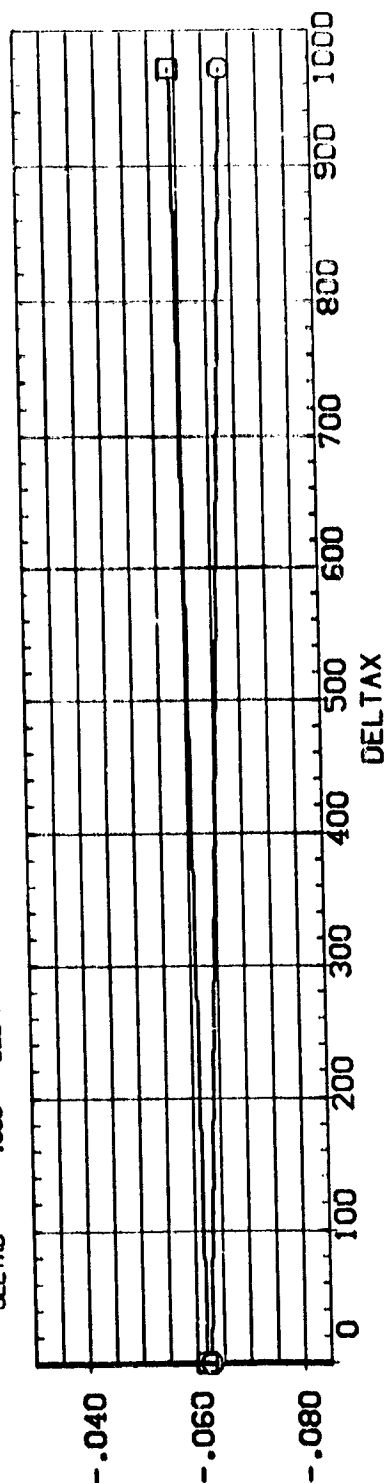
[illegible][illegible]

ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TORSION

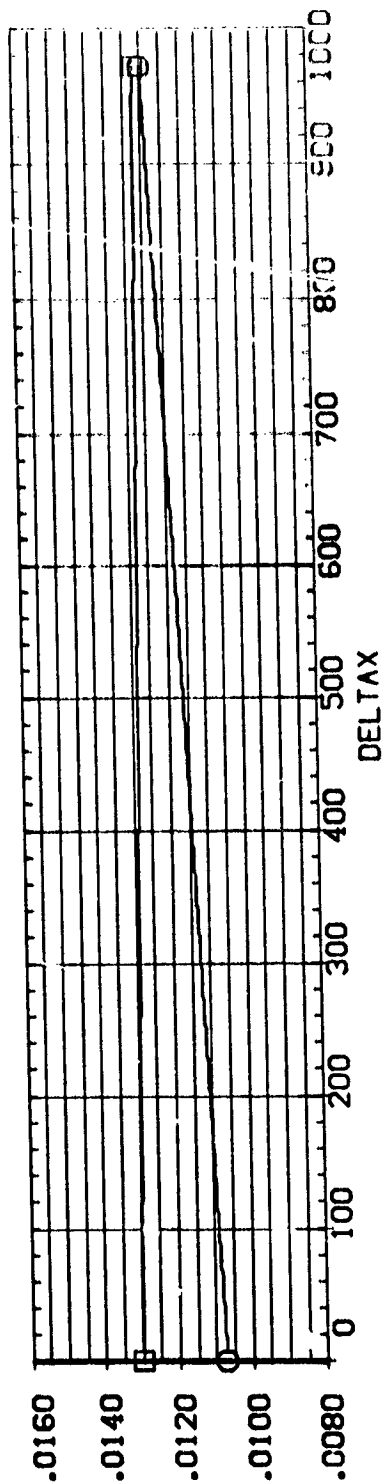
# M571(1A6A) ORB (013) WITH TANK (T9) SEPARATING (C85025)

| SYMBOL |         | DELTA Z |        | PARAMETRIC VALUES |         | DATA SOURCE |         | REFERENCE INFORMATION |           |
|--------|---------|---------|--------|-------------------|---------|-------------|---------|-----------------------|-----------|
| ○      | 162.000 | ALPHA   | -2.000 | BETA              | .000    | DATASET     | DELTA Z | SREF                  | 2690.0000 |
| □      | 486.000 | MACH    | 4.960  | DLTCLV            | -40.000 | C85025      | 162.000 | UREF                  | 1328.3330 |
|        |         | ATLROD  | .000   | RUDDER            | .000    |             |         | BREF                  | 1348.3000 |
|        |         | RUDFLR  | 40.000 | DELTA             | 5.000   |             |         | YREF                  | 567.7000  |
|        |         | DELTA B | .000   | DELTA Y           | .000    |             |         | ZREF                  | .0000     |
|        |         |         |        |                   |         |             |         | SCALE                 | .00       |

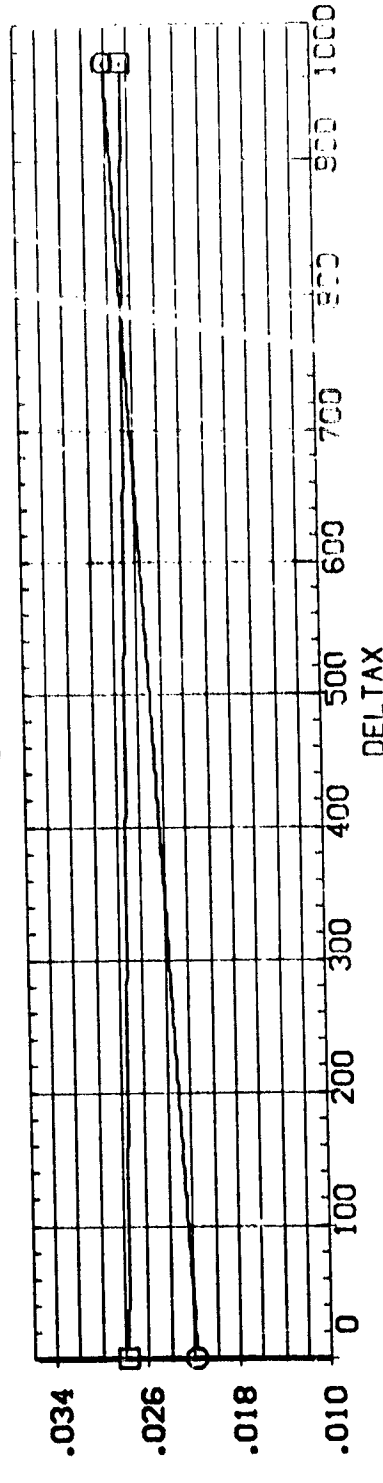
DLTCLN



DLTCLM



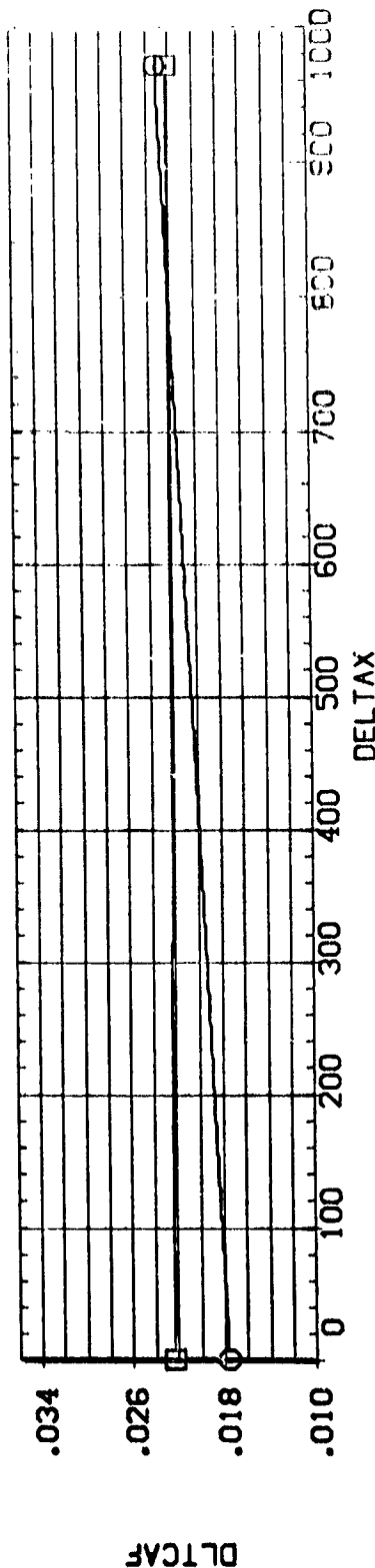
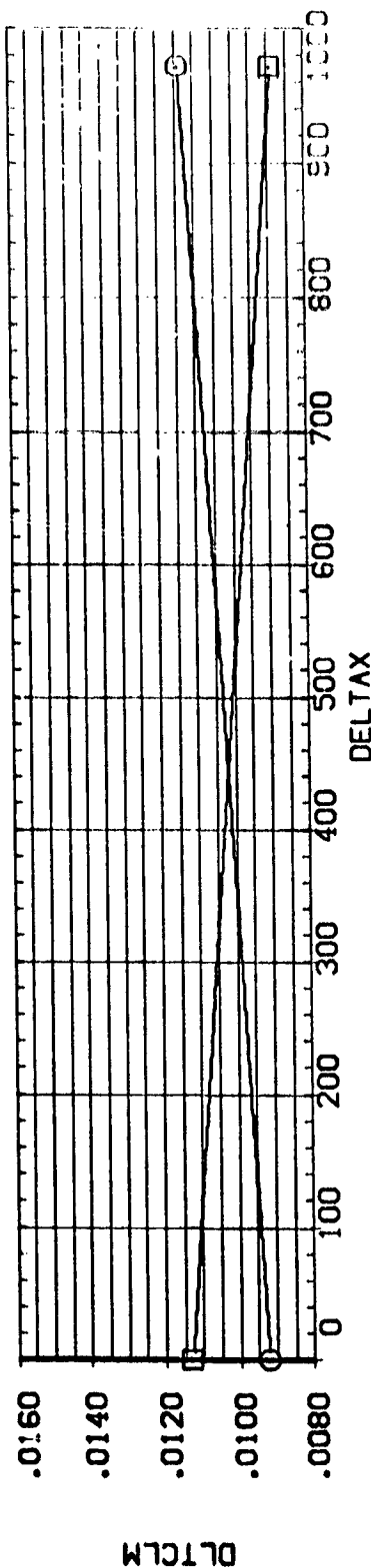
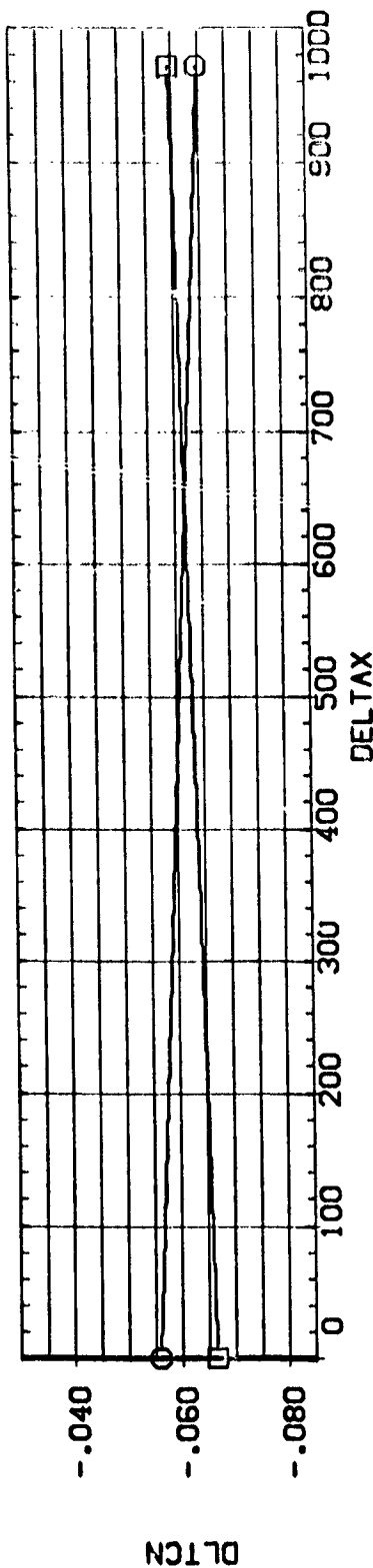
DLTCAF



ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK

# M571(1A6A) ORB (013) WITH TANK (19) SEPARATING (C83025)

|        |         |        |        |                   |         |             |       |                       |         |
|--------|---------|--------|--------|-------------------|---------|-------------|-------|-----------------------|---------|
| SYMBOL |         | DELTAZ |        | PARAMETRIC VALUES |         | DATA SOURCE |       | REFERENCE INFORMATION |         |
| ○      | 162.000 | ALPHA  | .000   | BETA              | .000    | DELTAZ      | SRF   | 2680.0000             | 50. FT. |
| □      | 486.000 | MACH   | 4.950  | DLTCLV            | -40.000 | C85025      | LRF   | 1328.3000             | IN.     |
|        |         | AILRON | .000   | RUDDER            | .000    |             | BRF   | 1328.3000             | IN.     |
|        |         | RUDFLR | 40.000 | DELTAA            | 5.000   |             | XREF  | 567.7000              | IN.     |
|        |         | DELTAB | .000   | DELTAY            | .000    |             | YREF  | 1.0000                | IN.     |
|        |         |        |        |                   |         |             | ZREF  | 1.0000                | IN.     |
|        |         |        |        |                   |         |             | SCALE | .0040                 |         |



ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK

| REFERENCE INFORMATION |         |
|-----------------------|---------|
| 2690.0000             | 50. FT. |
| 1328.3000             | IN.     |
| 1328.3000             | IN.     |
| 667.7000              | IN.     |
| 0.0000                | IN.     |
| 0.0000                | IN.     |
| 0.0040                | IN.     |

| SYMBOL | DELTA Z |
|--------|---------|
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| 2      | 0.00    |
| 3      | 0.00    |
| 4      | 0.00    |
| 5      | 0.00    |
| 6      | 0.00    |
| 7      | 0.00    |
| 8      | 0.00    |
| 9      | 0.00    |
| 10     | 0.00    |
| 11     | 0.00    |
| 12     | 0.00    |
| 13     | 0.00    |
| 14     | 0.00    |
| 15     | 0.00    |
| 16     | 0.00    |
| 17     | 0.00    |
| 18     | 0.00    |
| 19     | 0.00    |
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| 21     | 0.00    |
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| 96     | 0.00    |
| 97     | 0.00    |
| 98     | 0.00    |
| 99     | 0.00    |
| 100    | 0.00    |

162.000  
486.000

ALPHA  
MACH  
A IL RCON  
RUOFLR  
DEL TAB

|                   |        |
|-------------------|--------|
| PARAMETRIC VALUES | BETA   |
| 2.000             | DLTELV |
| 4.960             | RUDDER |
| .000              | DELTAA |
| 40.000            | DELTAY |
| .000              |        |

DATA SOURCE

|         | DATASET |
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| .000    |         |
| 5.000   |         |
| .000    |         |

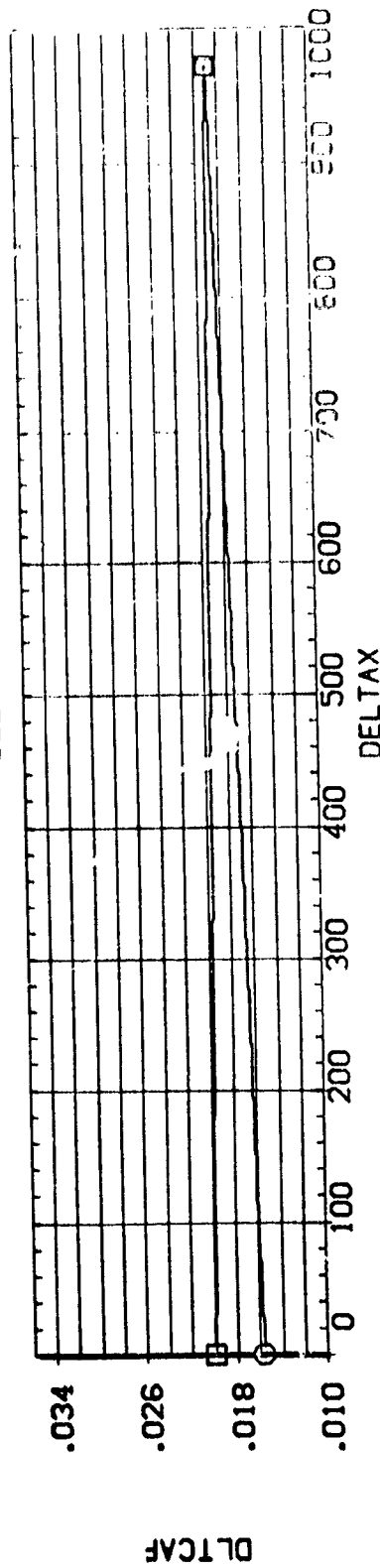
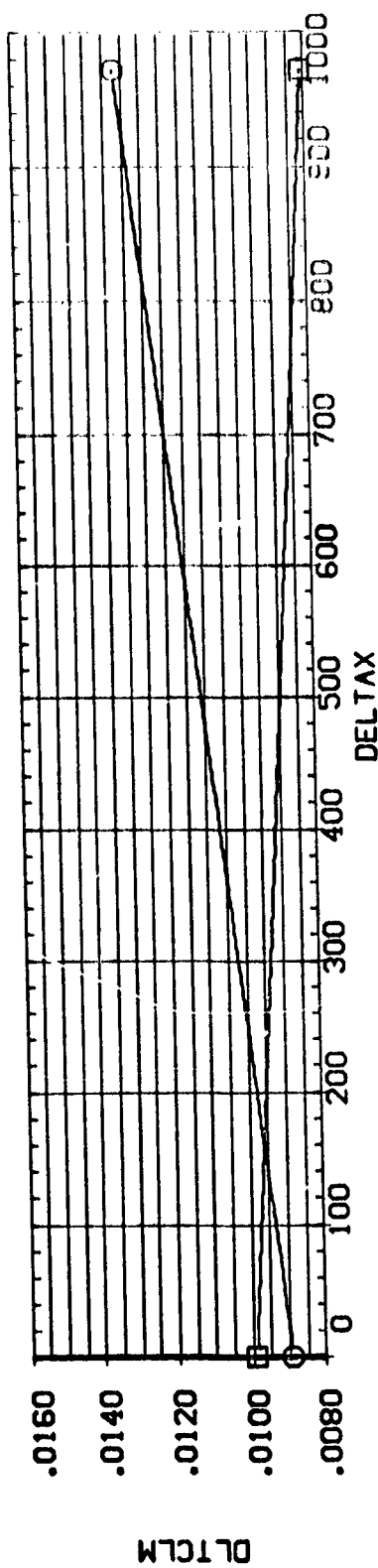
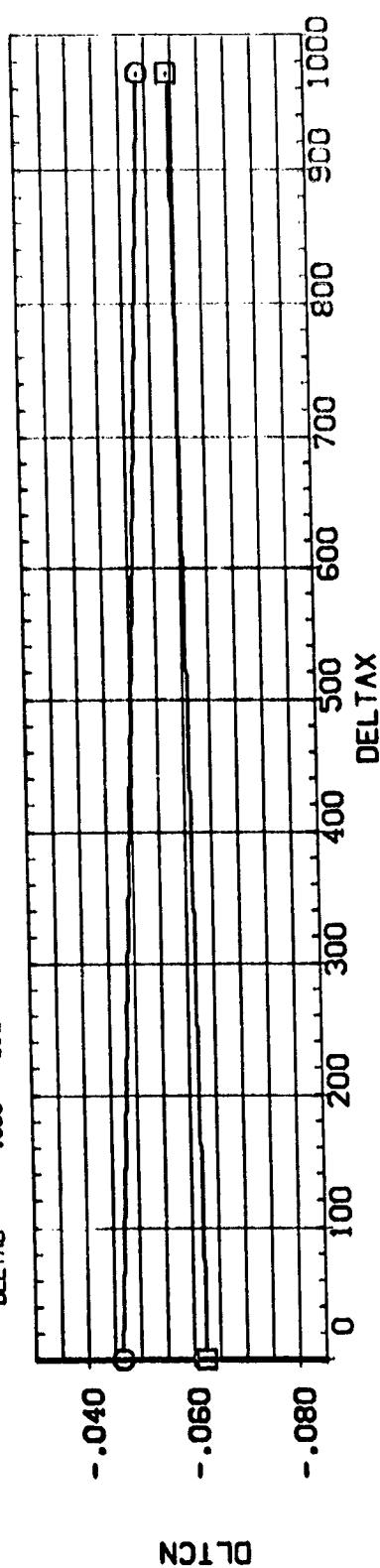
DELTAZ  
162.000

**DELTA**  
**486.000**

SCALE  
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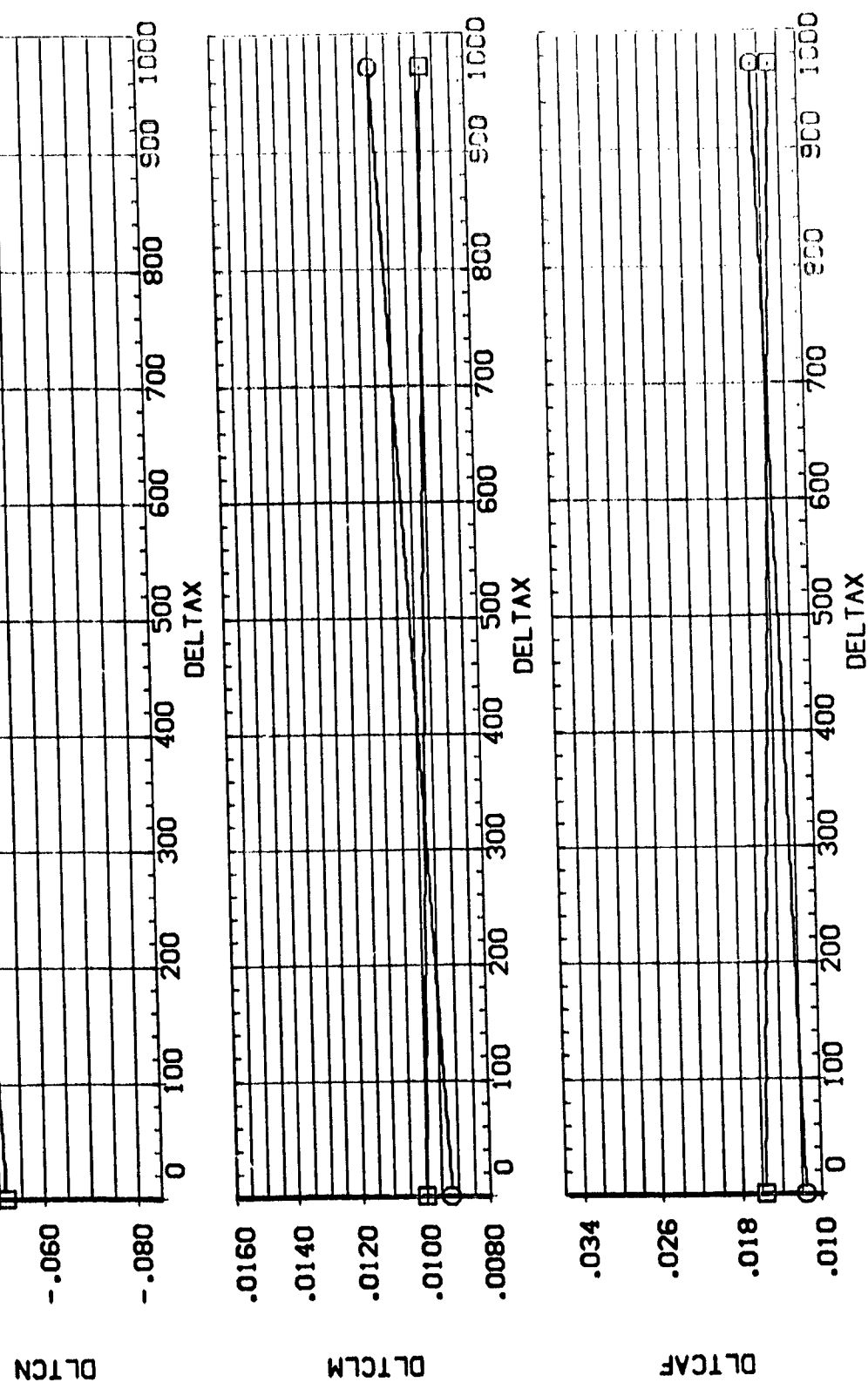
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# ELEVON EFFECTIVENESS-ORBITER IN PRESENCE OF EXTERNAL TANK

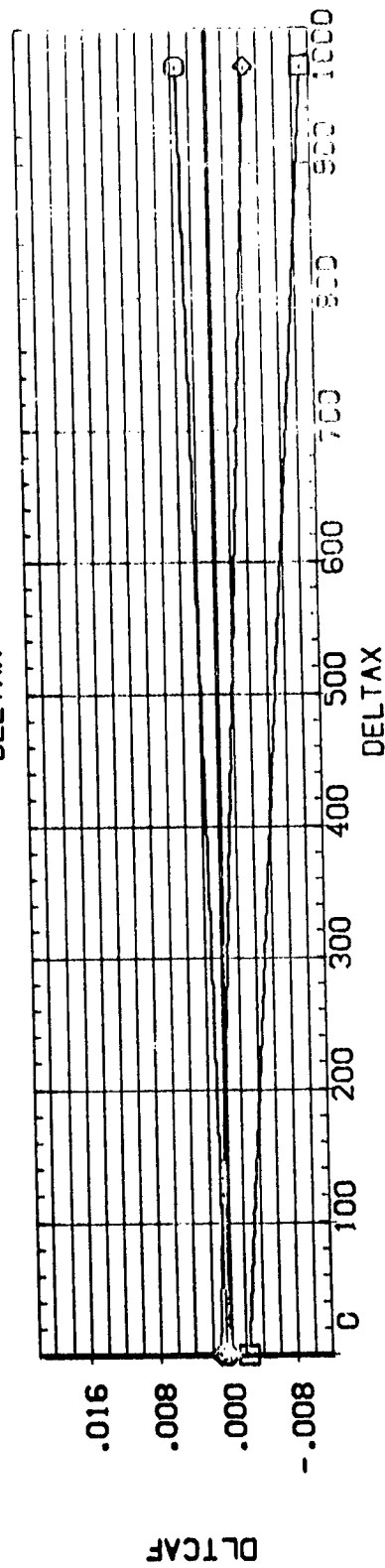
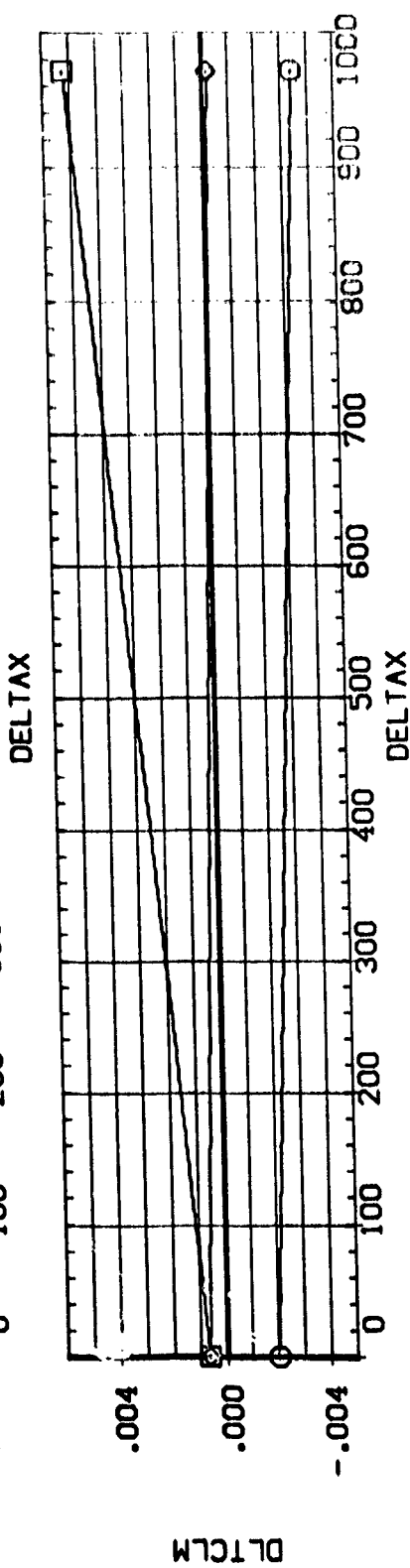
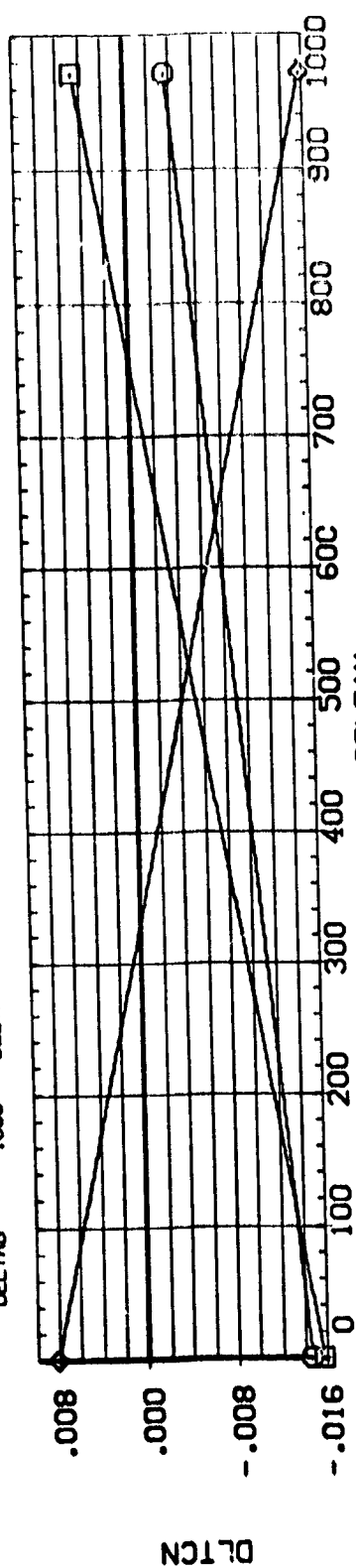
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ELEVON EFFECTIVENESS- ORBITER IN PRESENCE OF EXTERNAL TANK

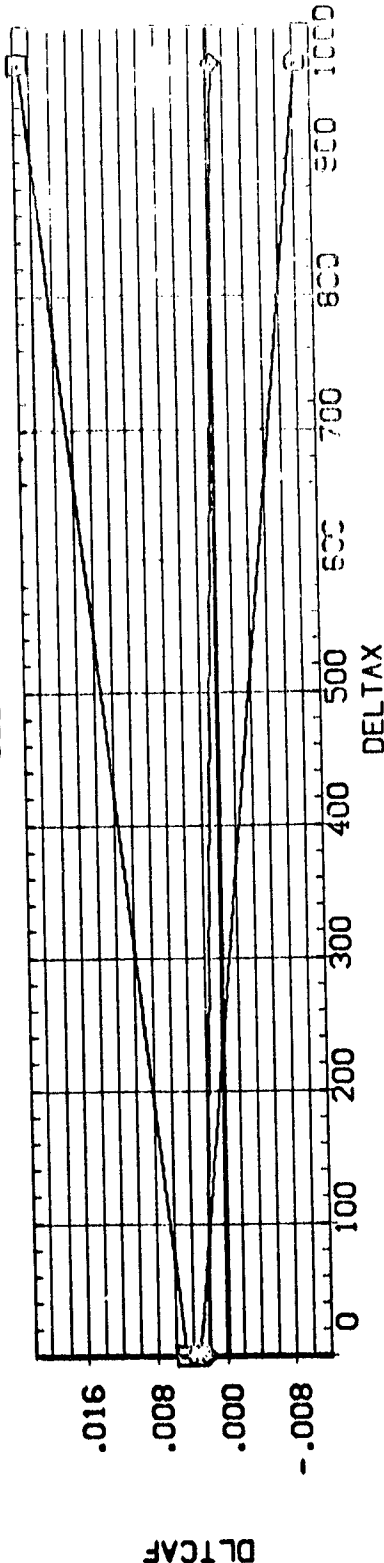
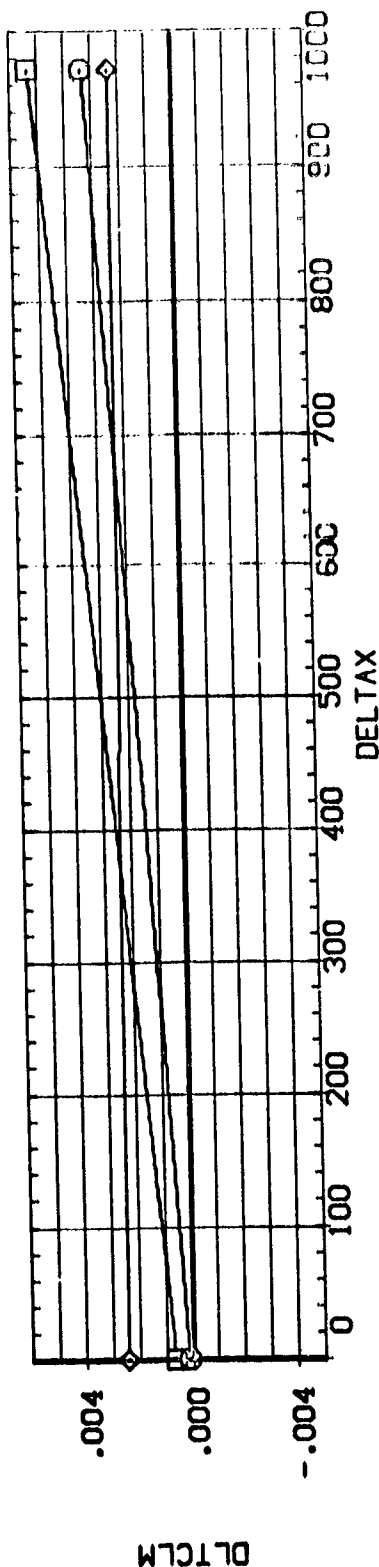
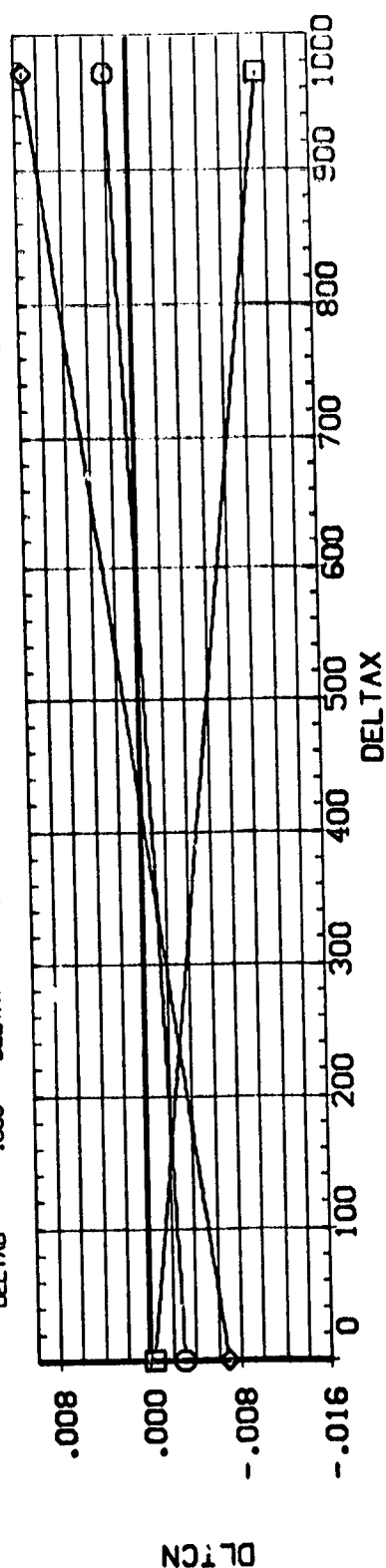
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| SYMBOL |         | DELTA Z |        | PARAMETRIC VALUES |        | DATA SOURCE |         | REFERENCE INFORMATION |           |
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| □      | 162.000 | MACH    | 4.960  | DL TELV           | 10.000 | DELTA Z     | 162.000 | LREF                  | 1328.3000 |
| ◇      | 486.000 | AIRLON  | .000   | RUDDER            | .000   | DELTA Z     | 486.000 | BREF                  | 1328.3000 |
|        |         | RUDFLR  | 40.000 | DELTA Z           | .000   | DELTA Z     | 486.000 | XREF                  | 928.0000  |
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ELEVON EFFECTIVENESS- EXTERNAL TANK IN PRESENCE OF ORBITER

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LEVELON EFFECTIVENESS- EXTERNAL TANK IN PRESENCE OF CCBITER

# M571(1A6A) TANK(T9)SEPARATING FROM ORBITER(013) (C85T13)

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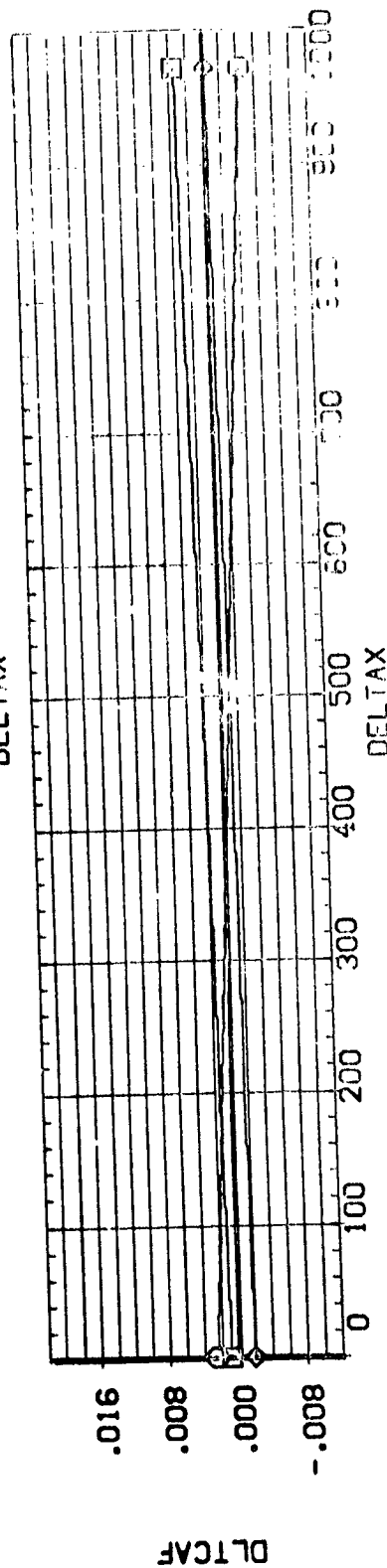
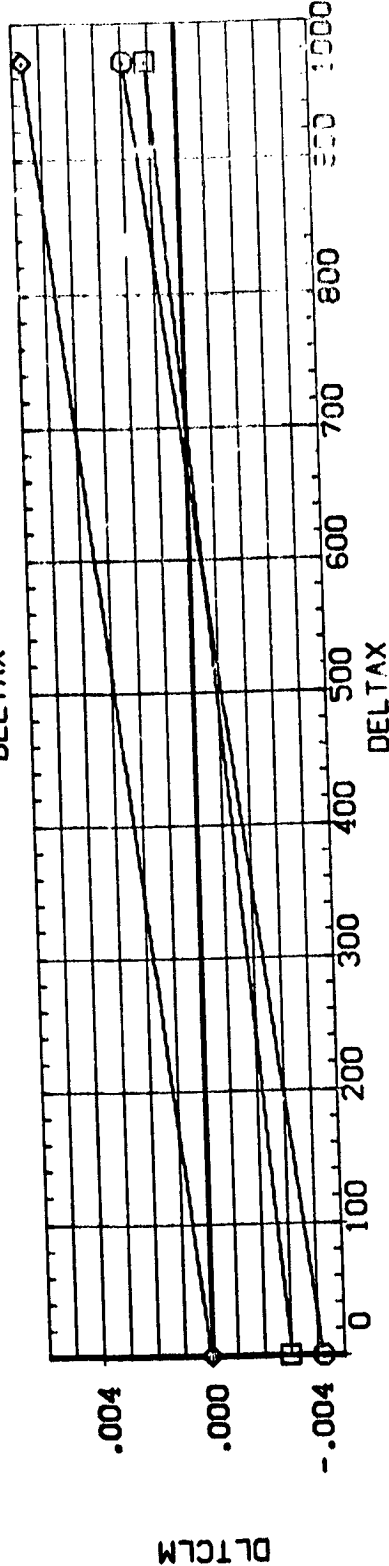
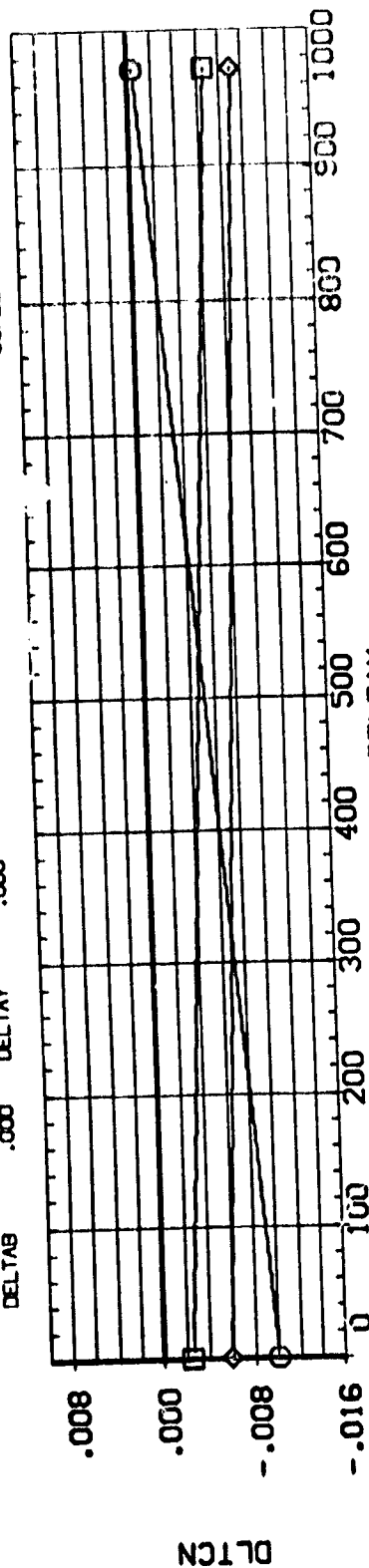
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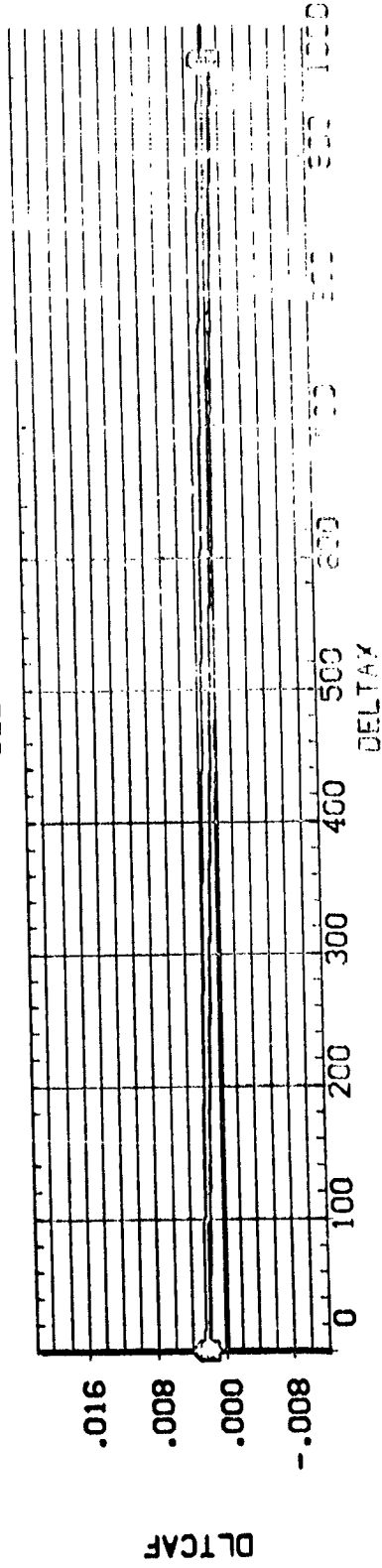
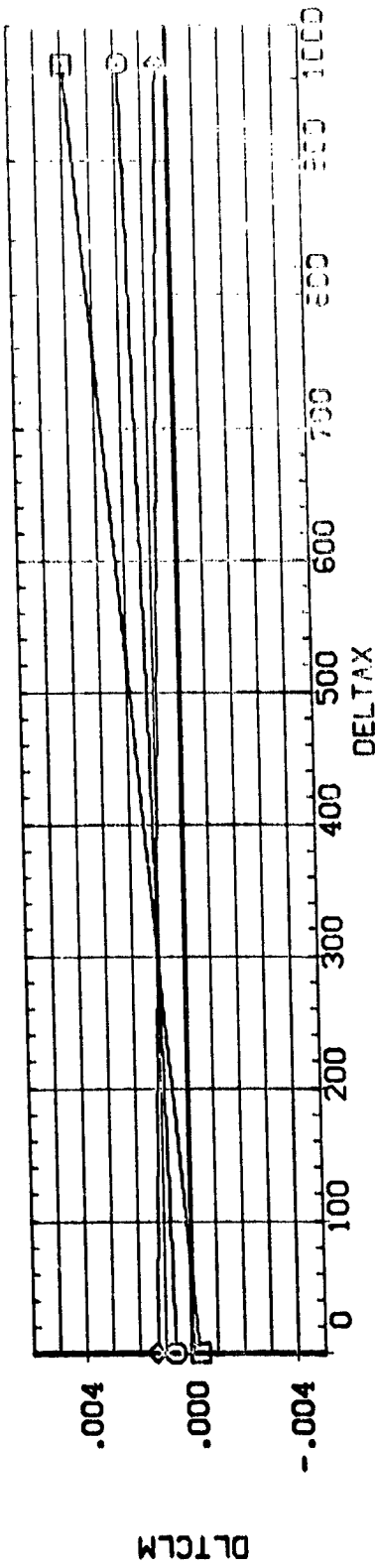
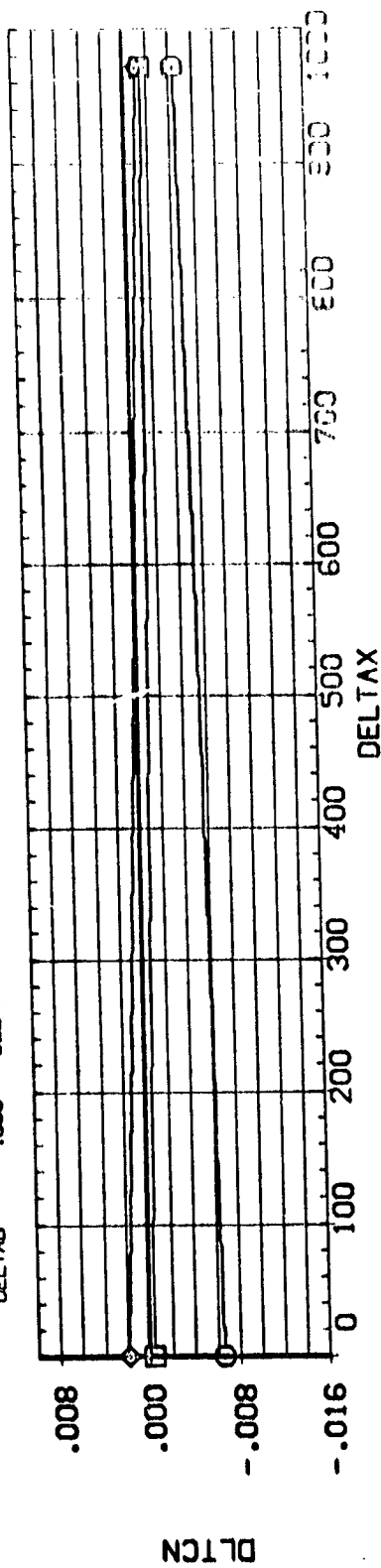
ELEVON EFFECTIVENESS- EXTERNAL TANK IN PRESENCE OF ORBITER





# M571(1A6A) TANK(T9)SEPARATING FROM ORBITER(013) (C85T13)

| SYMBOL | DELTAZ  | PARAMETRIC VALUES | DATA SOURCE | REFERENCE INFORMATION |
|--------|---------|-------------------|-------------|-----------------------|
| ○      | .000    | ALPHA             | DELTAZ      | SREF                  |
| □      | 162.000 | MACH              | DELTAZ      | LREF                  |
| ◇      | 486.000 | AIRLON            | DELTAZ      | BREF                  |
|        |         | RUDFLR            | DELTAZ      | XREF                  |
|        |         | DELTAZ            | DELTAZ      | YREF                  |
|        |         |                   | DELTAZ      | ZREF                  |
|        |         |                   | DELTAZ      | SCALE                 |
|        |         |                   | DELTAZ      | 50. FT.               |



00000000  
00000000  
00000000  
00000000  
00000000

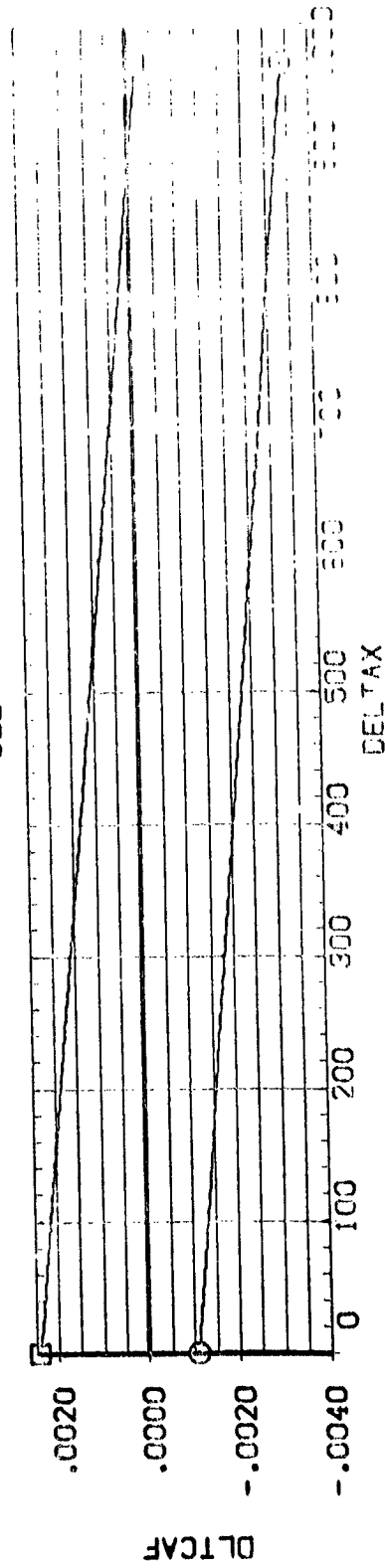
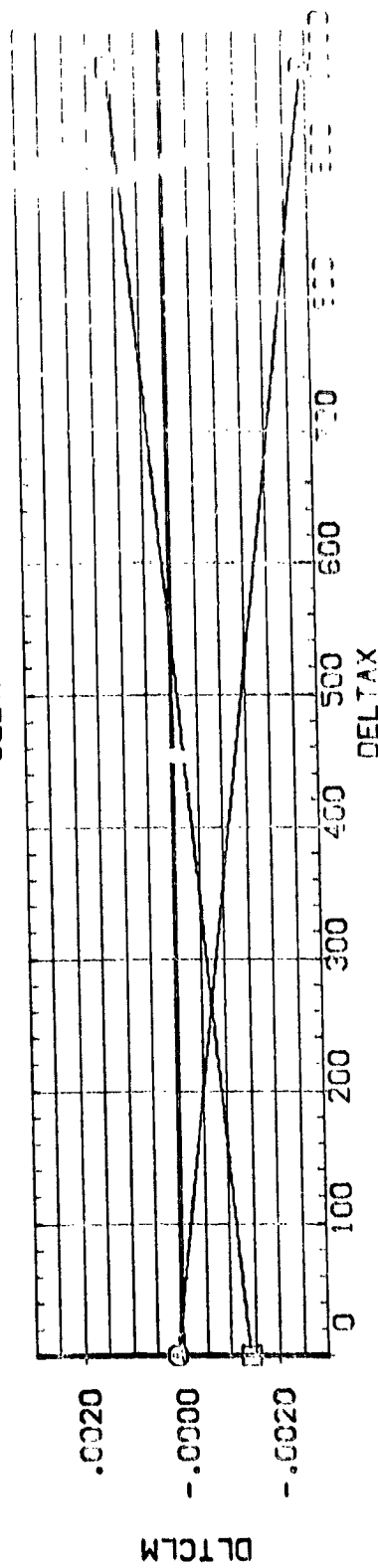
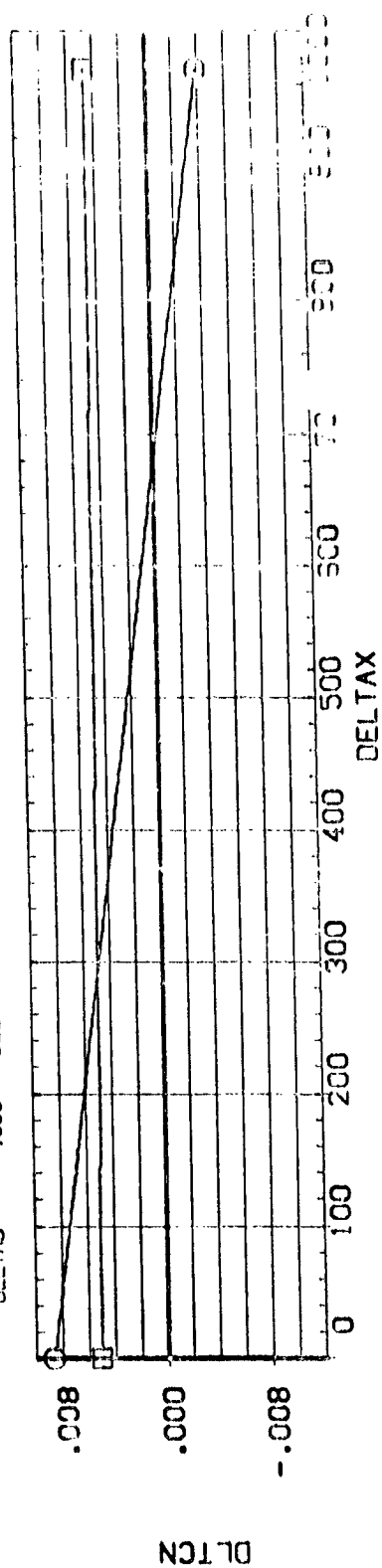
DELTA Z  
162.000  
485.000

| PARAMETRIC VALUES |
|-------------------|
| BETA              |
| -5.000            |
| DELTA V           |
| 4.560             |
| RODDER            |
| .000              |
| DELTA A           |
| 40.000            |
| DELTA Y           |
| .000              |

|        |         |         |         |
|--------|---------|---------|---------|
| 10.000 | DATASET | DELTA   | DELTA   |
| 5.000  | C85T15  | 162.000 | 162.000 |
| 1.000  |         |         |         |
| 1.000  |         |         |         |
| 1.000  |         |         |         |

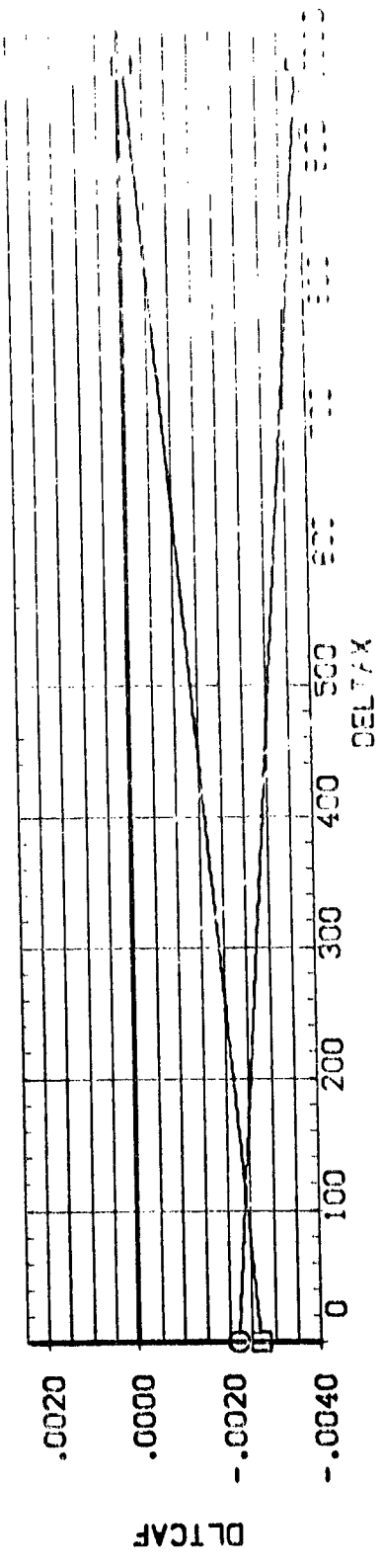
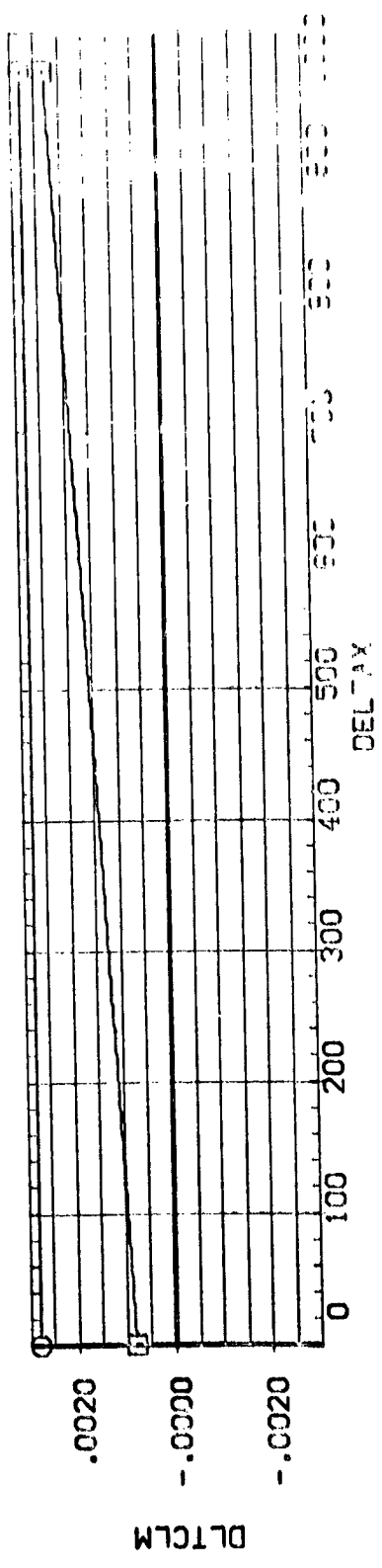
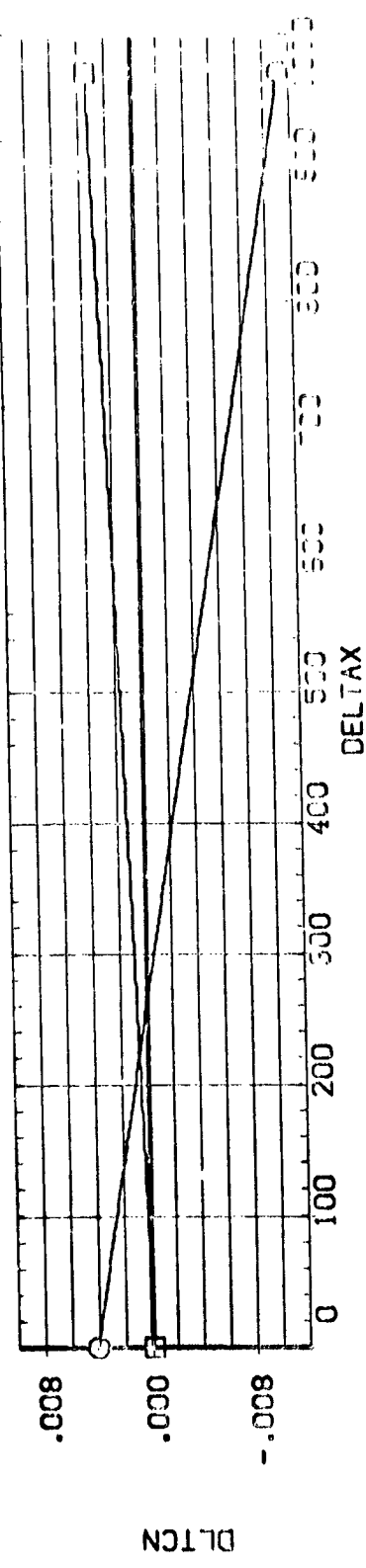
7-1356  
CASE:

DEL-72  
DOE-33



# ELEVON EFFECTIVENESS-EXTERNAL TANK IN PRESENCE OF EXTERIOR



[illegible]

ELEVON EFFECTIVENESS-EXTERNAL TANK IN PRESENCE OF DEFLECTOR



# MS71(IAGA) TANK(T9)SEPARATING FROM ORBITER(013) (C85T15)

SYMBOL  
□

DELTAZ  
162.000  
486.000

ALPHA  
MACH  
AILRON  
RJOFIR  
DELTAB

PARAMETRIC VALUES  
BETA  
CLTELV  
RJODER  
DELTAA  
DELTAY

.000  
10.000  
.000  
5.000  
.000

DATA SOURCE  
DELTAZ  
162.000

DATASET  
C85T15

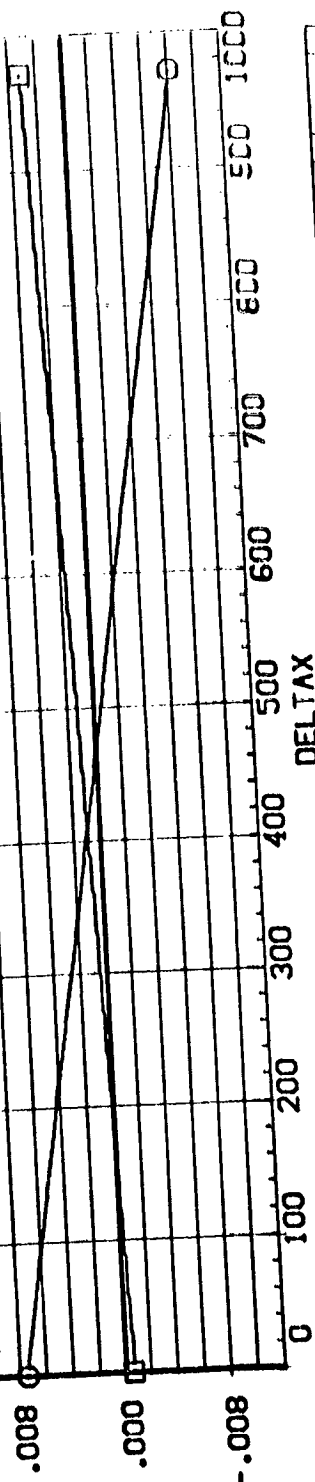
DELTAZ  
486.000

C85T17

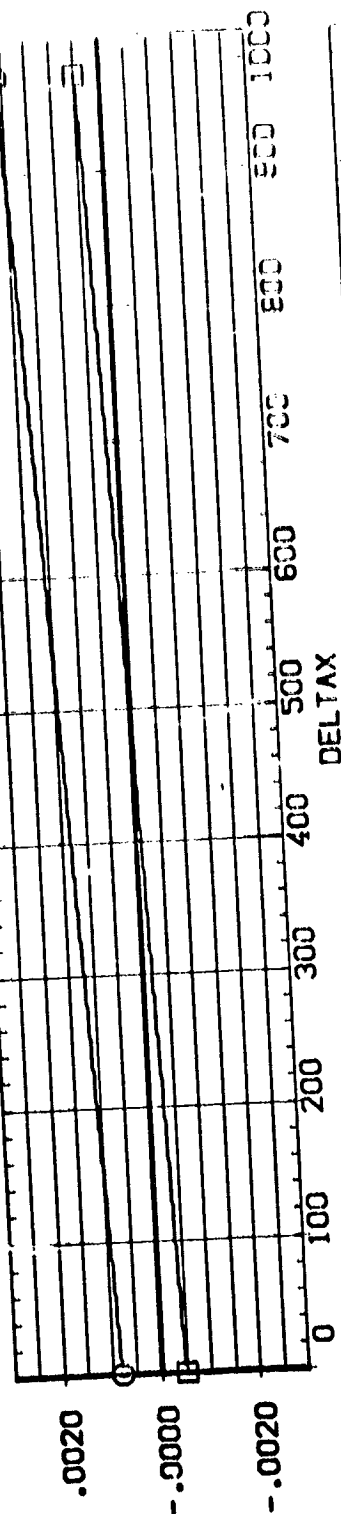
SCALE

REFERENCE INFORMATION  
SCALE  
222222

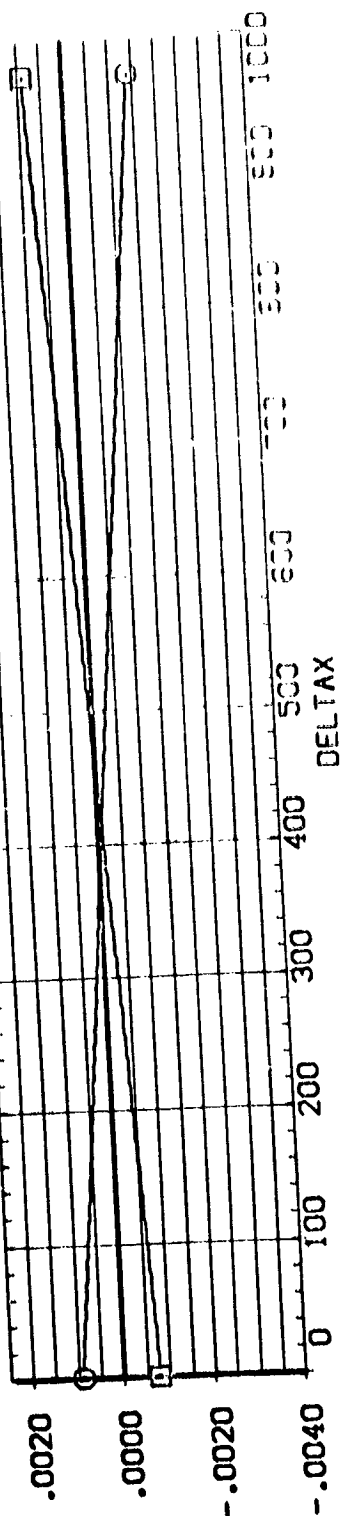
DLTCLN



DLTCLM



DLTCAF



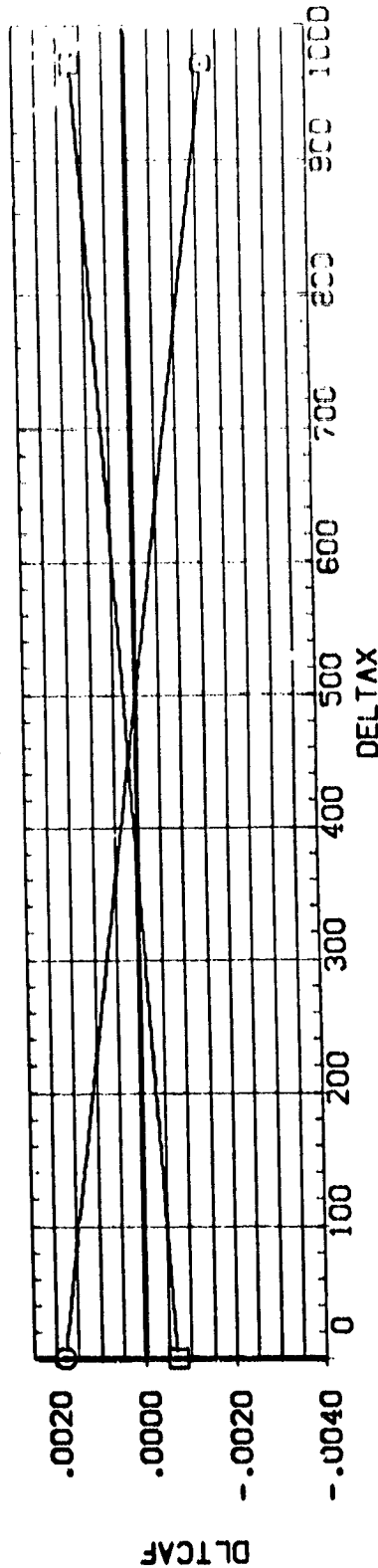
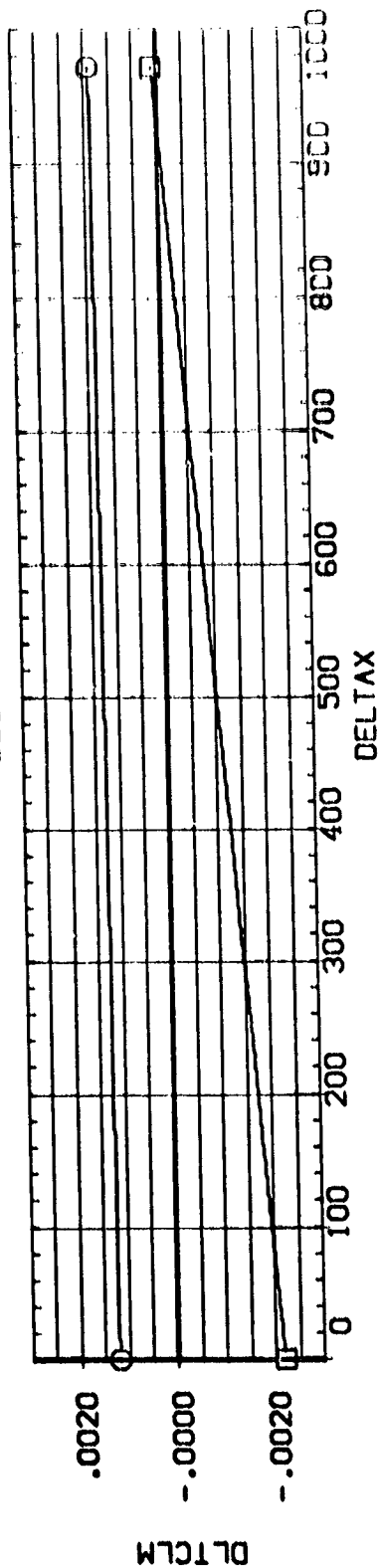
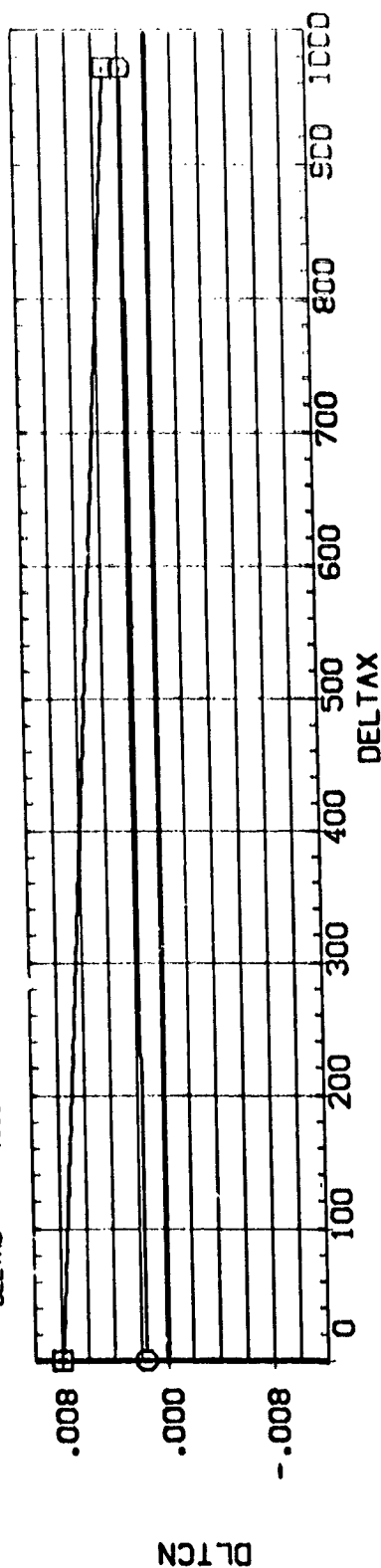
ELEVON EFFECTIVENESS- EXTERNAL TANK IN PRESENCE OF JRETT

[illegible]

| DATA SOURCE | DATASET | DELTAZ  | SPEC |
|-------------|---------|---------|------|
| DELTAZ      | C95T17  | 496.000 | DEL  |
| 62.000      |         |         | NOVE |
|             |         |         | XPO  |
|             |         |         | YPO  |
|             |         |         | ZPO  |
|             |         |         | TOLE |

| PARAMETRIC VALUES |        | DATASET |
|-------------------|--------|---------|
| 5.000             | BETA   | .000    |
| 4.960             | DLTELV | 10.000  |
| .000              | RUGGER | .000    |
| 40.000            | DELTAA | 5.000   |
| .000              | DELTAY | .000    |

| SYMBOL | DELTA Z | ALPHA | BETA   | DELTA B |
|--------|---------|-------|--------|---------|
| ○      | 152.000 | MACH  | ALBION | RUFEL   |
| □      | 486.000 |       |        | DELTA B |



ELEVON EFFECTIVENESS- EXTERNAL TANK IN PRESENCE OF ORBITER

Symbol

DELTA Z  
DOC  
DOC. 291  
DOC. 000

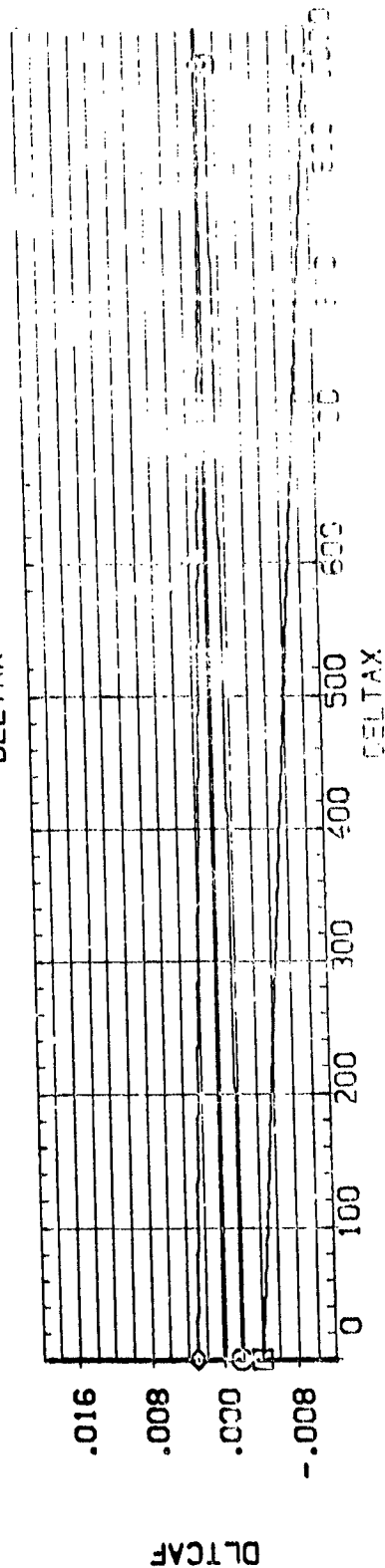
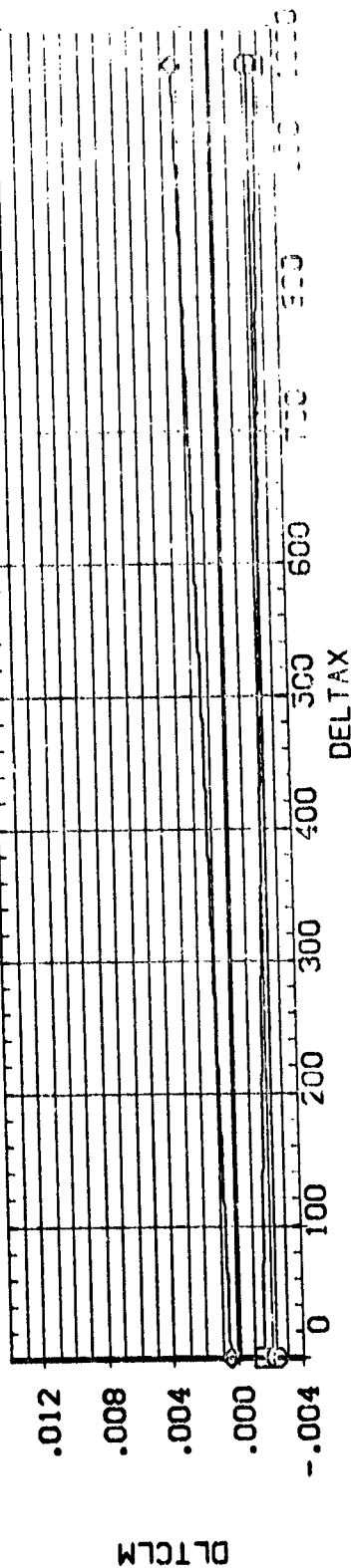
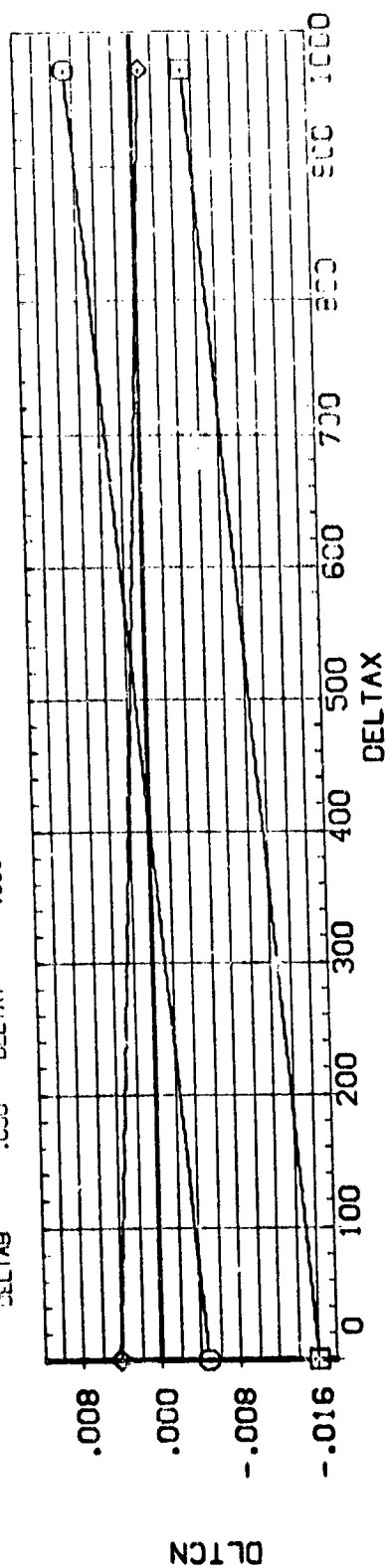
ALPHA  
MACH  
AIRRON  
FUGFLR  
DELTA8

| PARAMETRIC VALUES |
|-------------------|
| BETA              |
| -5.000            |
| CLTELV            |
| 4.960             |
| RUDGER            |
| .000              |
| DELTAM            |
| 40.000            |
| DELTAY            |
| .000              |

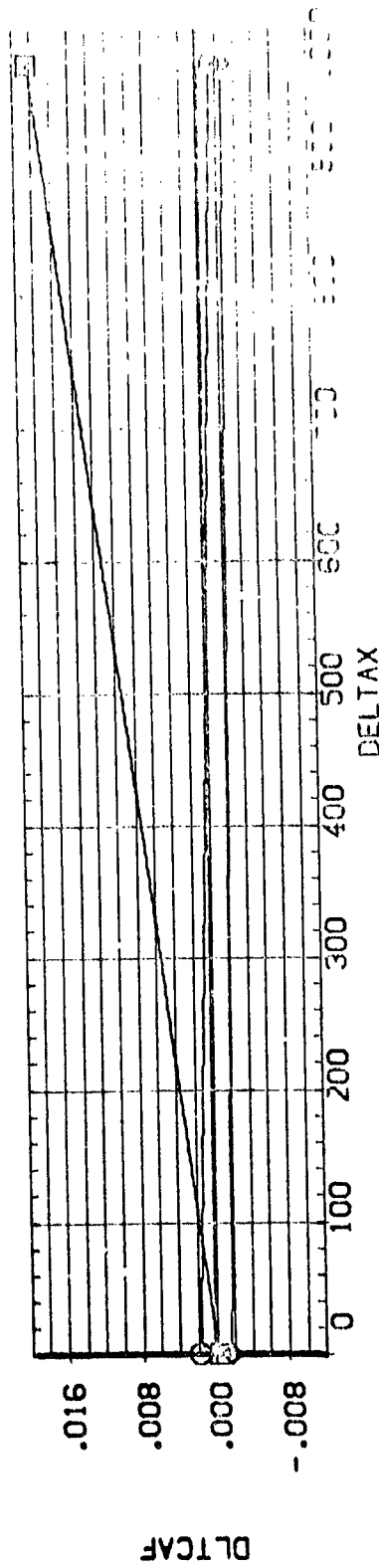
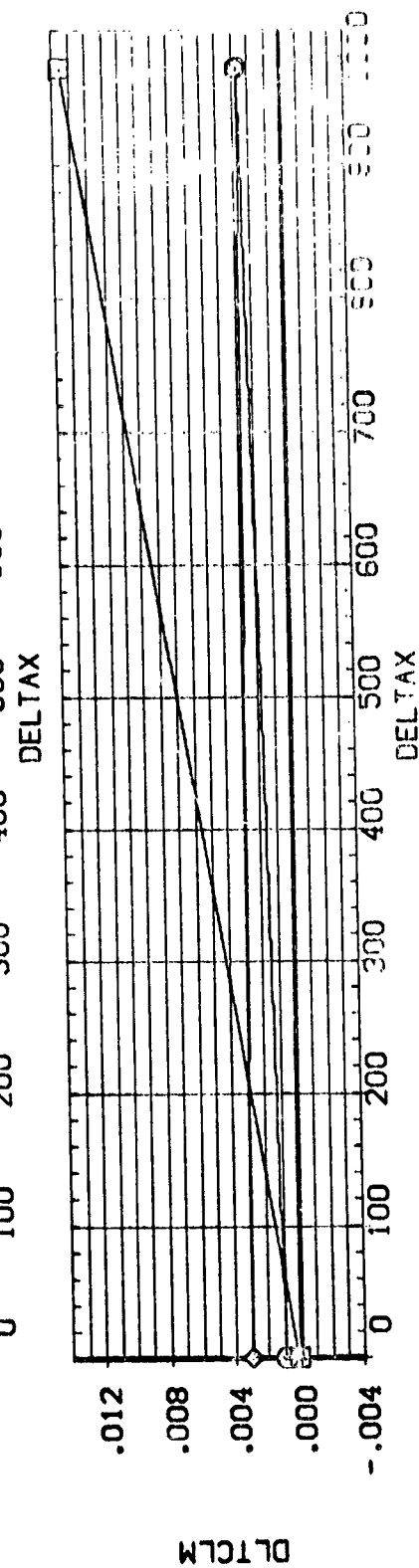
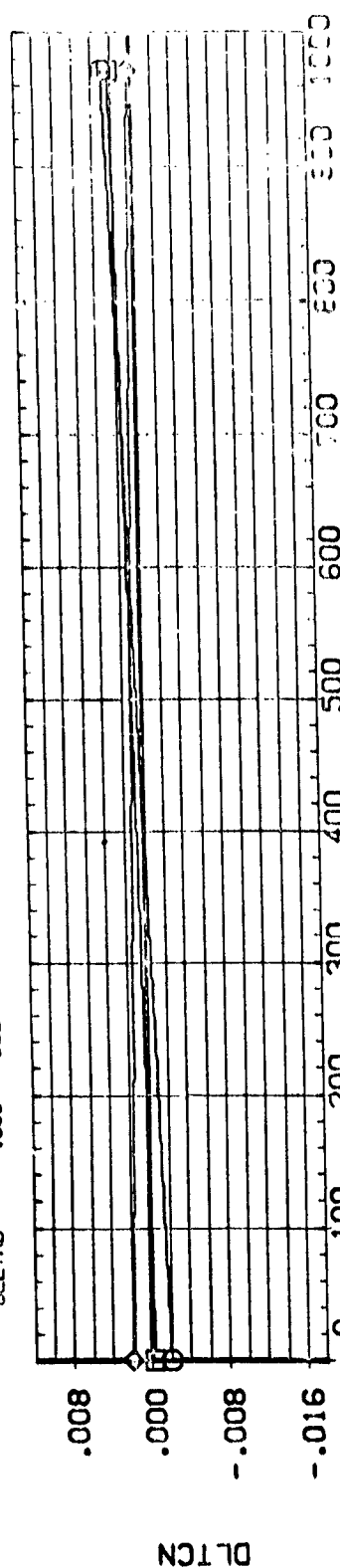
|         | DATA    | SUB     |
|---------|---------|---------|
| .000    | DATASET | DELTAZ  |
| -20.000 | C85T19  | .000    |
| .000    | C55T21  | 495.000 |
| .000    |         |         |
| .000    |         |         |

| CATASET | DELTA Z |
|---------|---------|
| C65T19  | 162.000 |

WILLIAM P. C. C.

[illegible]

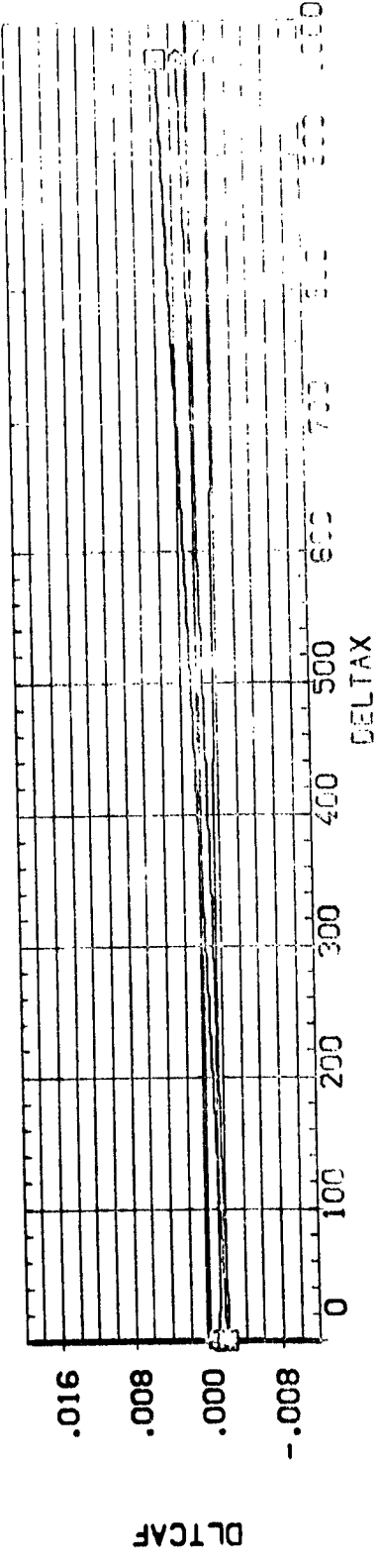
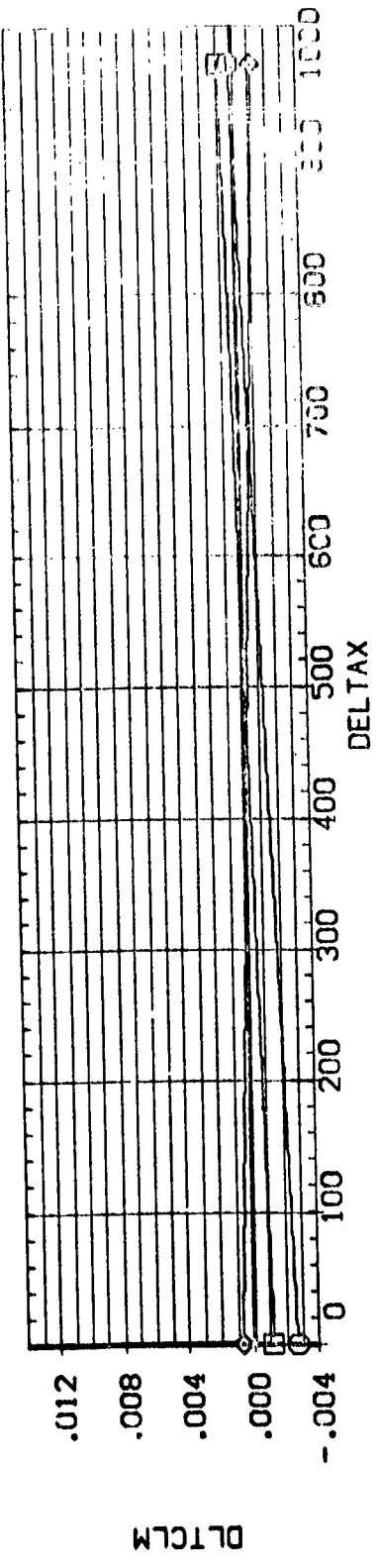
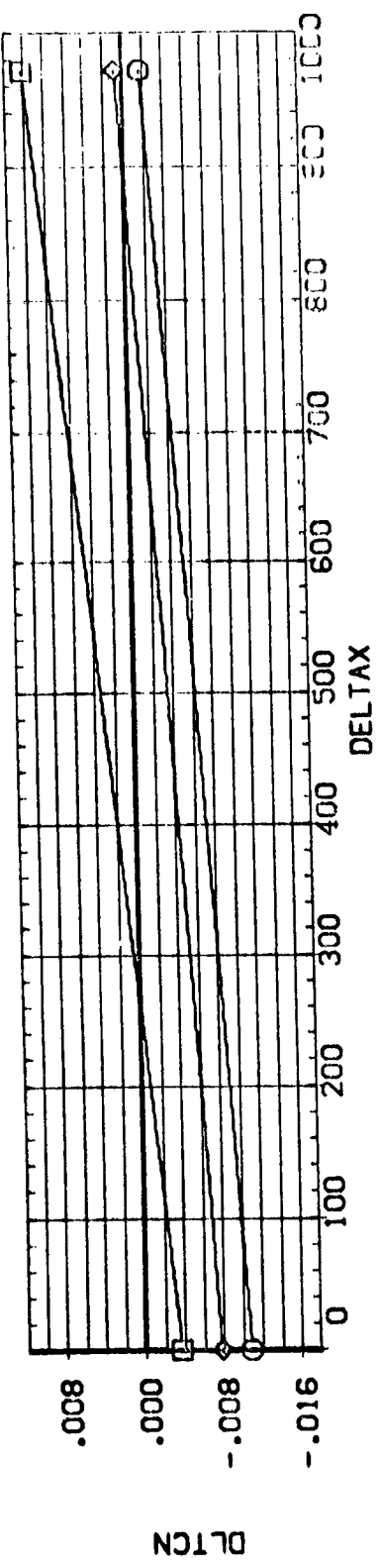
### ELEVON EFFECTIVENESS-EXTERNAL TANK IN PRESENCE OF WING

[illegible]

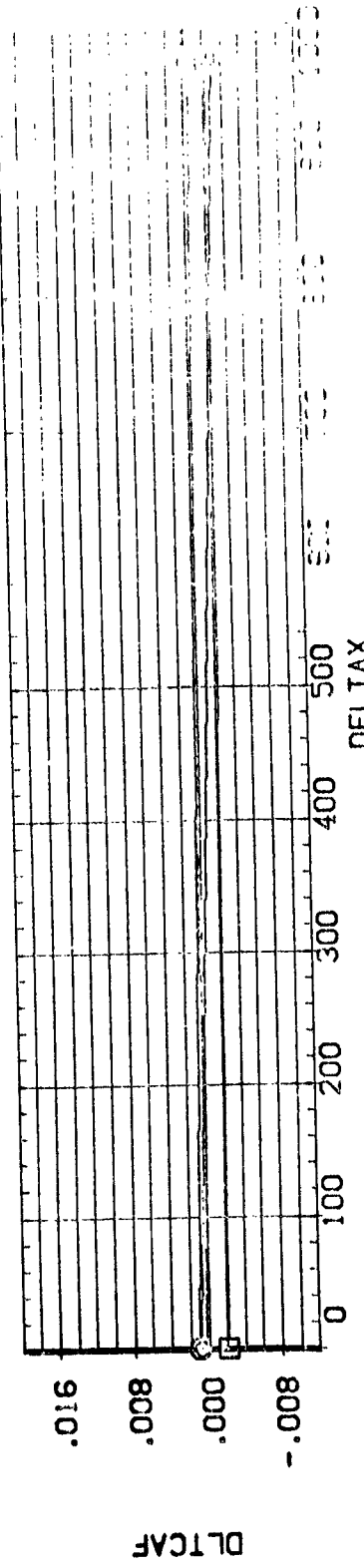
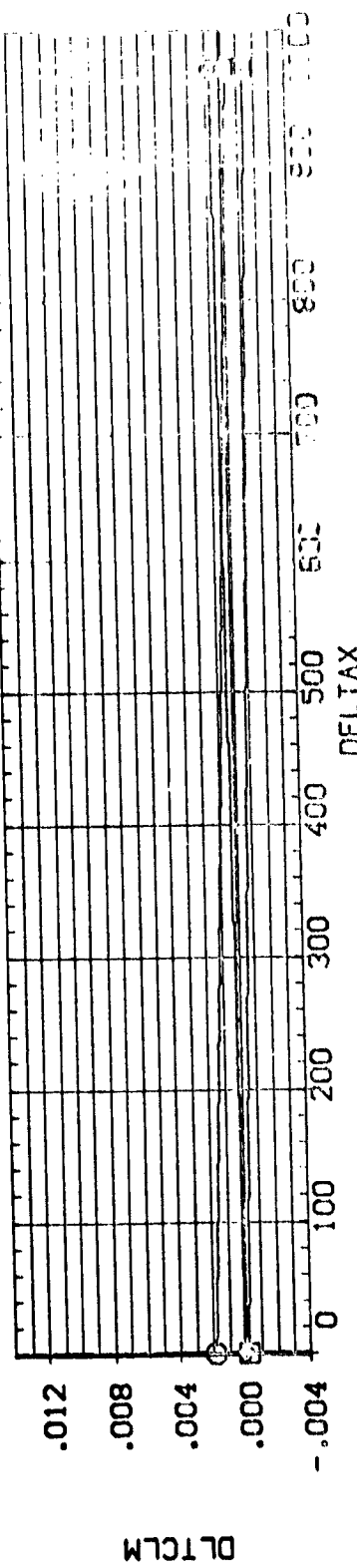
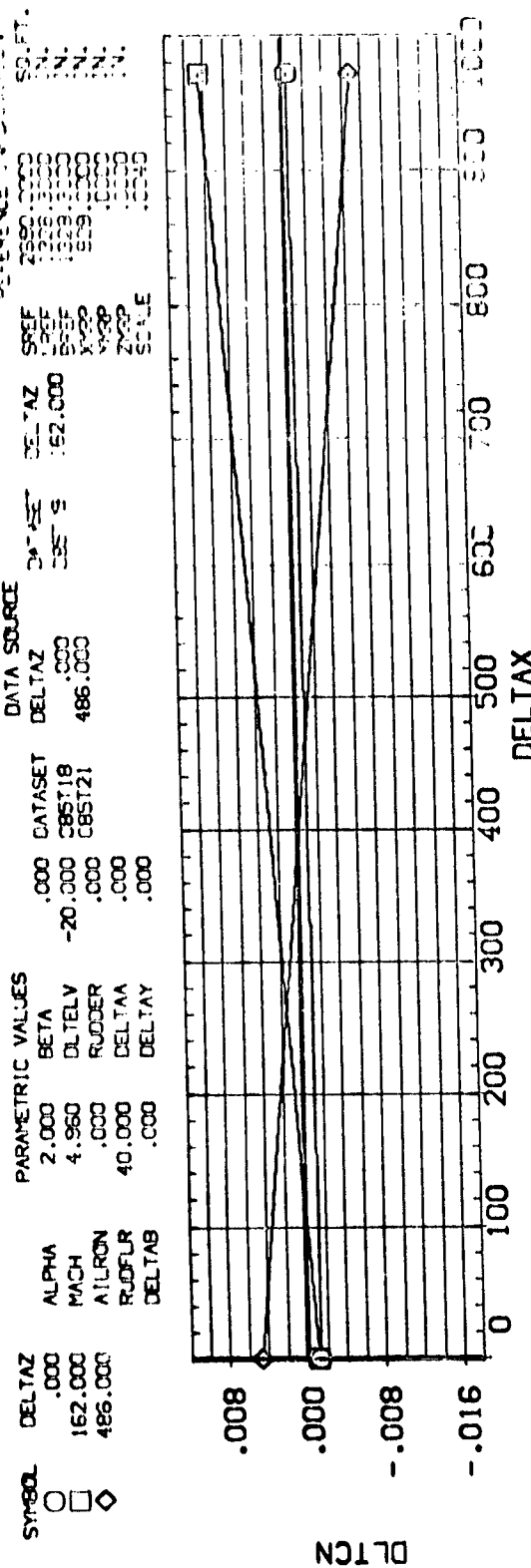
ELEVON EFFECTIVENESS- EXTERNAL TANK IN PRESENCE OF CREEPER

# M571(1A6A) TANK(T9)SEPARATING FROM ORBITER(013) (C85T18)

|        |         |                   |             |         |         |
|--------|---------|-------------------|-------------|---------|---------|
| SYMBOL | DELTA Z | PARAMETRIC VALUES | DATA SOURCE | DELTA Z | SCALE   |
| ○      | .000    | BETA              | .000        | C85T18  | 162.000 |
| □      | 162.000 | DL TELV           | 486.000     | C85T21  | 162.000 |
| ◇      | 486.000 | RUDER             | .000        |         | 162.000 |
|        |         | DELTA A           | .000        |         | 162.000 |
|        |         | DELTA Y           | .000        |         | 162.000 |



ELEVON EFFECTIVENESS- EXTERNAL TANK IN PRESENCE OF ORBITER

[illegible]

ELEVON EFFECTIVENESS-EXTERNAL TANK IN PRESENCE OF DEFLECTOR



# M571(1A6A) TANK(19)SEPARATING FROM ORBITER(013) (C85T18)

SYMBOL  
○ □ ◇

DELTAZ  
.000  
162.000  
486.000

ALPHA  
MACH  
AILRPN  
RUDFLR  
DELTAZ

PARAMETRIC VALUES  
BETA  
DELTV  
RUDDR  
DELTA  
DELTAZ

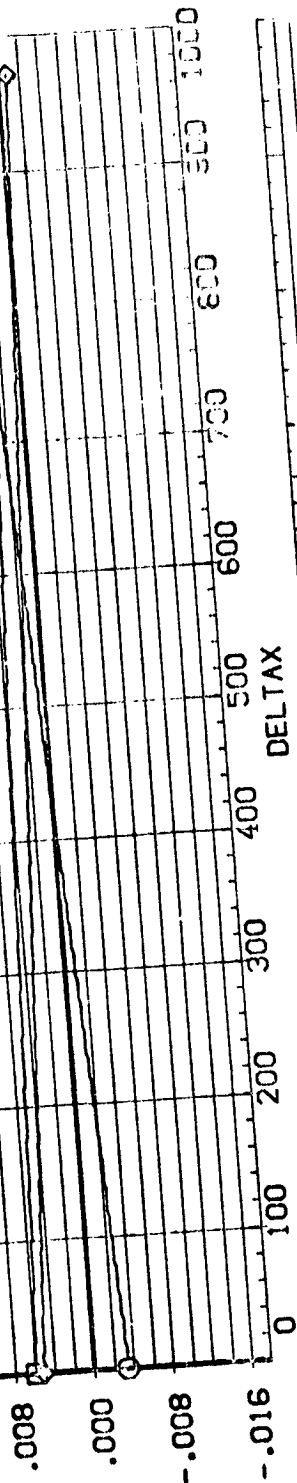
.000  
-20.000  
.000  
.000  
.000

DATA SOURCE  
DELTAZ  
486.000

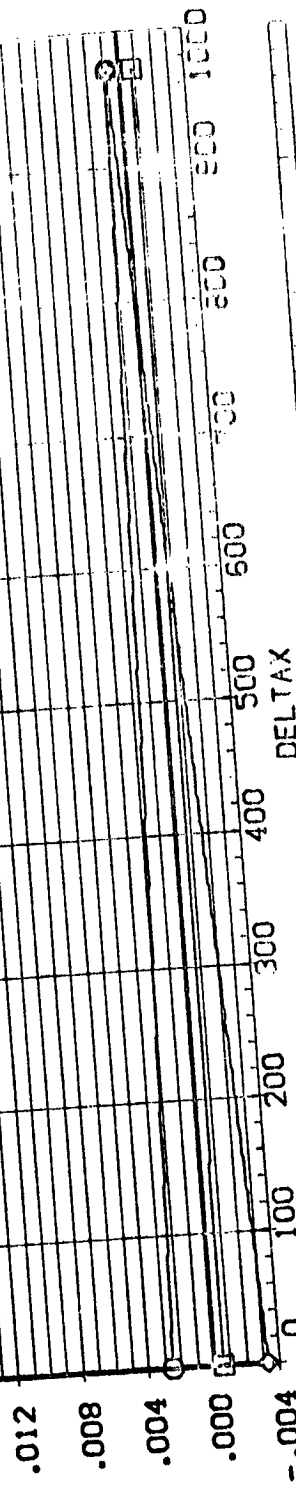
DELTAZ  
162.000  
486.000  
SCALE

REFERENCE INFORMATION  
SQ.FT.  
777777

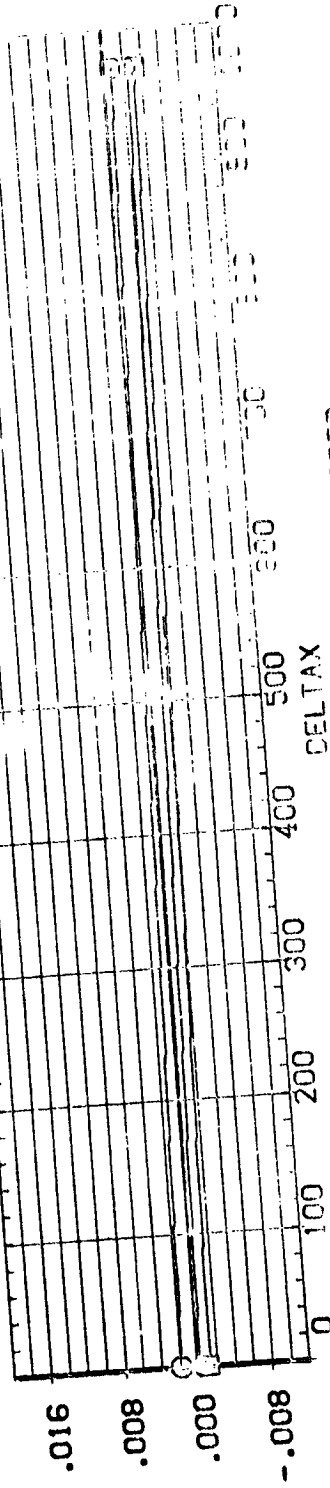
DLTCN



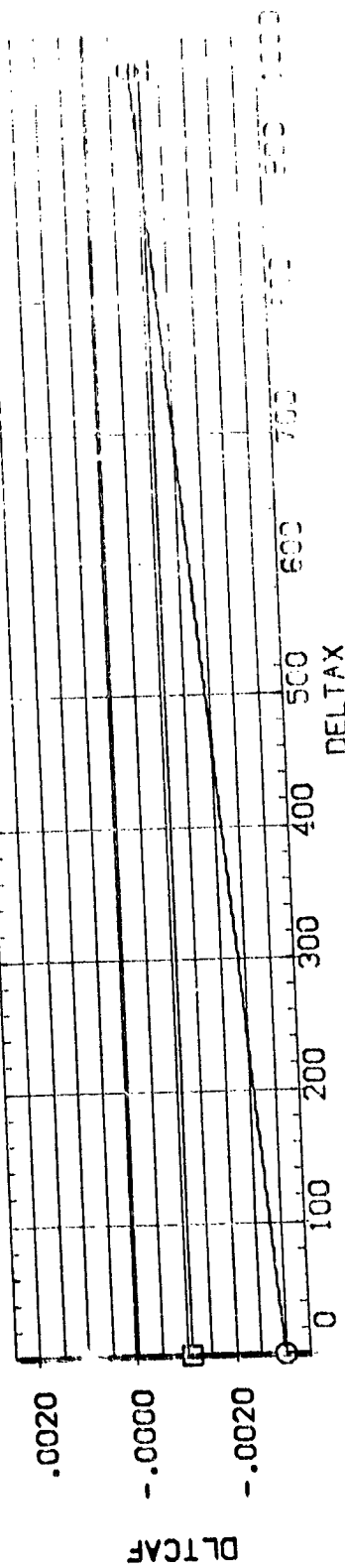
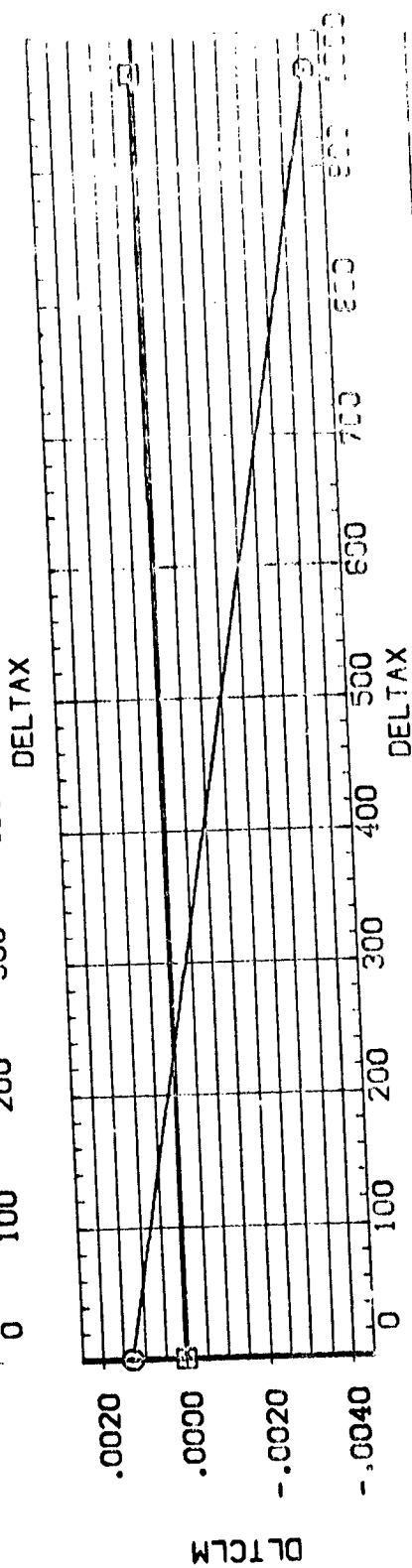
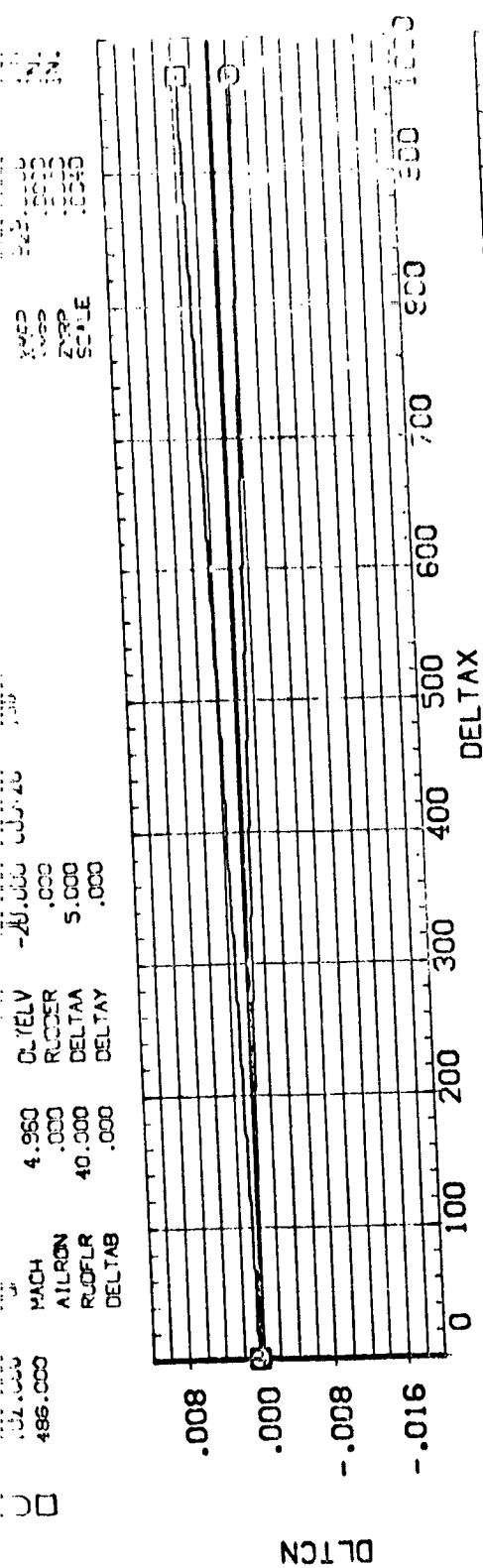
DLTCLM



DLTCAF



ELEVON EFFECTIVENESS- EXTERNAL TANK IN PRESENCE OF ORBITER

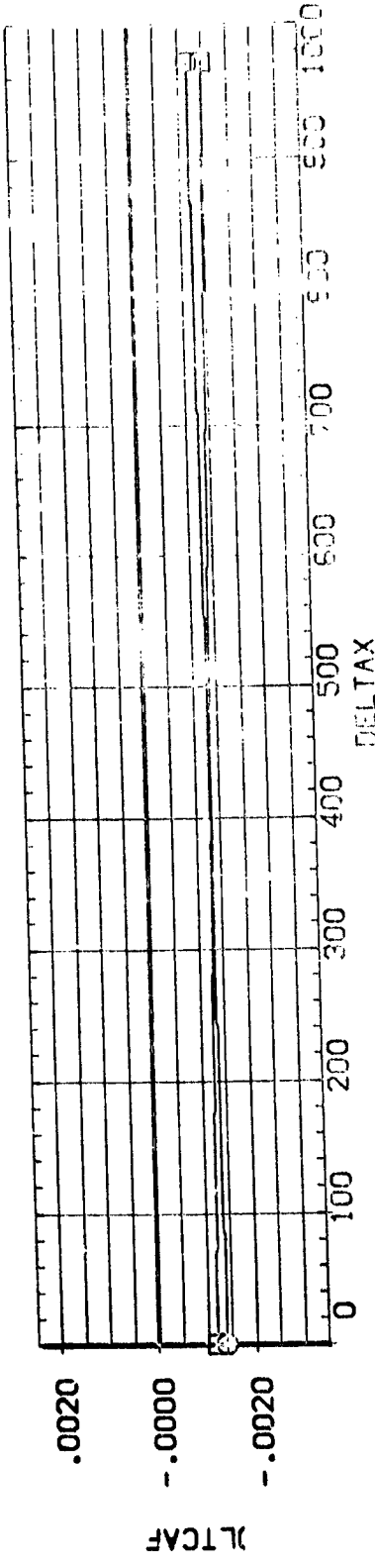
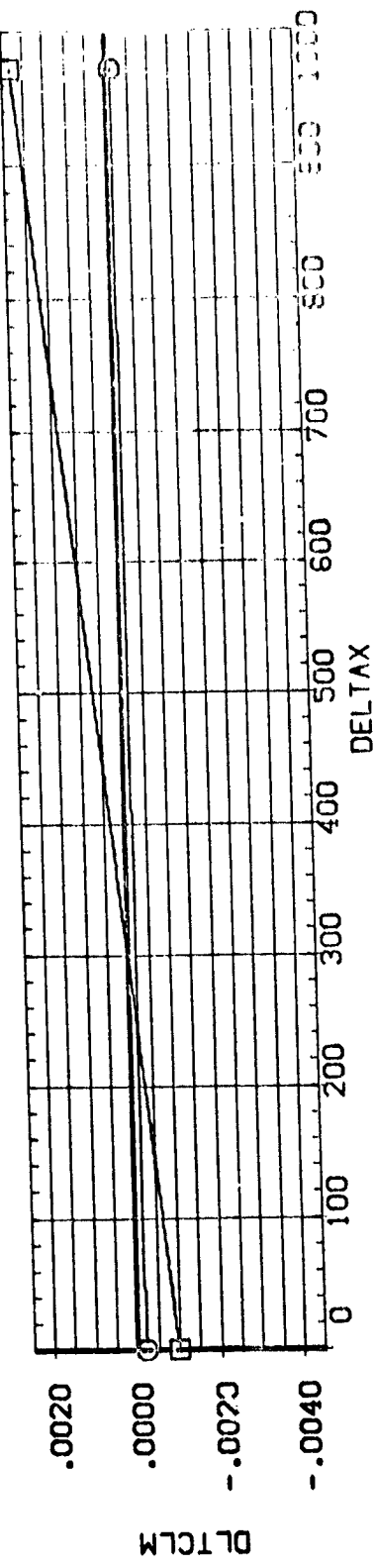
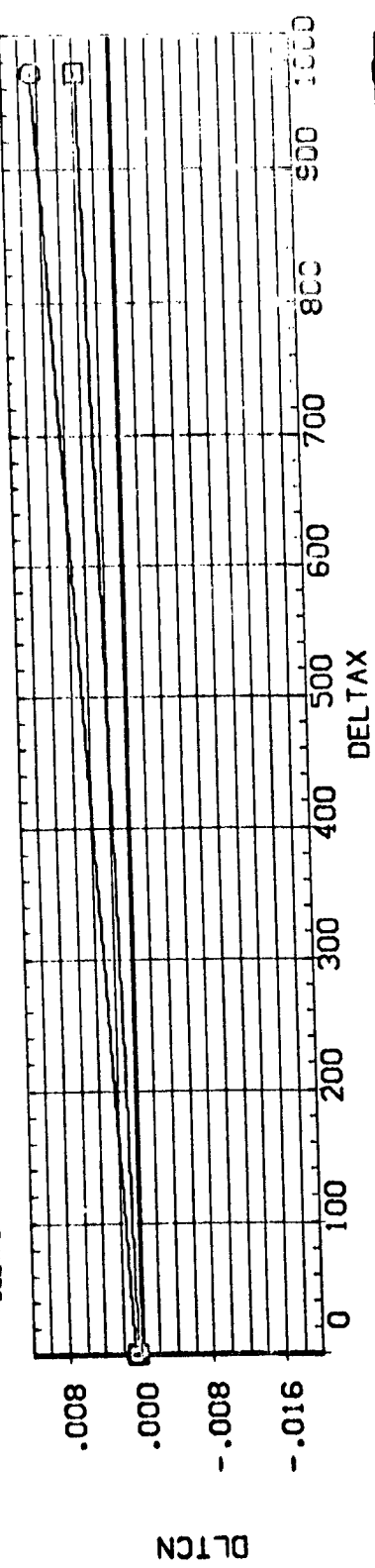


ELEVON EFFECTIVENESS- EXTERNAL TANK IN PRESENCE OF



M571(IAG) TANK(T9)SEPARATING FROM ORBITER(013) (C85T20)

| PARAMETRIC VALUES |         | DATA SOURCE |         | REFERENCE INFORMATION |         |
|-------------------|---------|-------------|---------|-----------------------|---------|
| DELTAZ            | DELTAZ  | DELTAZ      | DELTAZ  | DELTAZ                | DELTAZ  |
| 162.000           | 162.000 | 162.000     | 162.000 | 162.000               | 162.000 |
| 486.000           | 486.000 | 486.000     | 486.000 | 486.000               | 486.000 |
| ALPHA             | BETA    | DELTAZ      | DELTAZ  | DELTAZ                | DELTAZ  |
| -2.000            | -2.000  | DELTAZ      | DELTAZ  | DELTAZ                | DELTAZ  |
| MACH              | CL TELV | DELTAZ      | DELTAZ  | DELTAZ                | DELTAZ  |
| 4.950             | -20.000 | DELTAZ      | DELTAZ  | DELTAZ                | DELTAZ  |
| AILRON            | RUDER   | DELTAZ      | DELTAZ  | DELTAZ                | DELTAZ  |
| .000              | .000    | DELTAZ      | DELTAZ  | DELTAZ                | DELTAZ  |
| RUDFLR            | DELTAZ  | DELTAZ      | DELTAZ  | DELTAZ                | DELTAZ  |
| 40.000            | 5.000   | DELTAZ      | DELTAZ  | DELTAZ                | DELTAZ  |
| DELTAZ            | DELTAZ  | DELTAZ      | DELTAZ  | DELTAZ                | DELTAZ  |
| .000              | .000    | DELTAZ      | DELTAZ  | DELTAZ                | DELTAZ  |



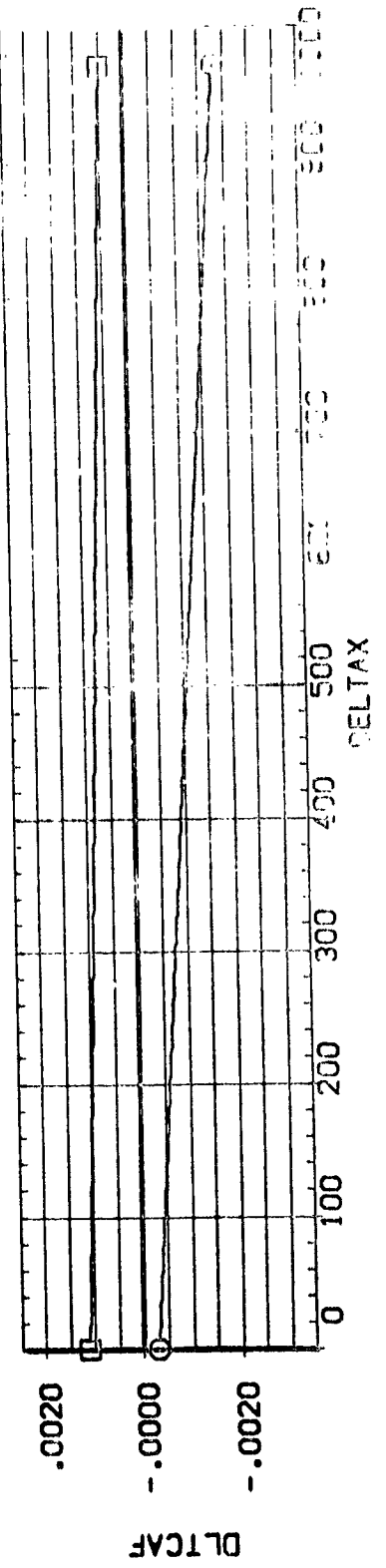
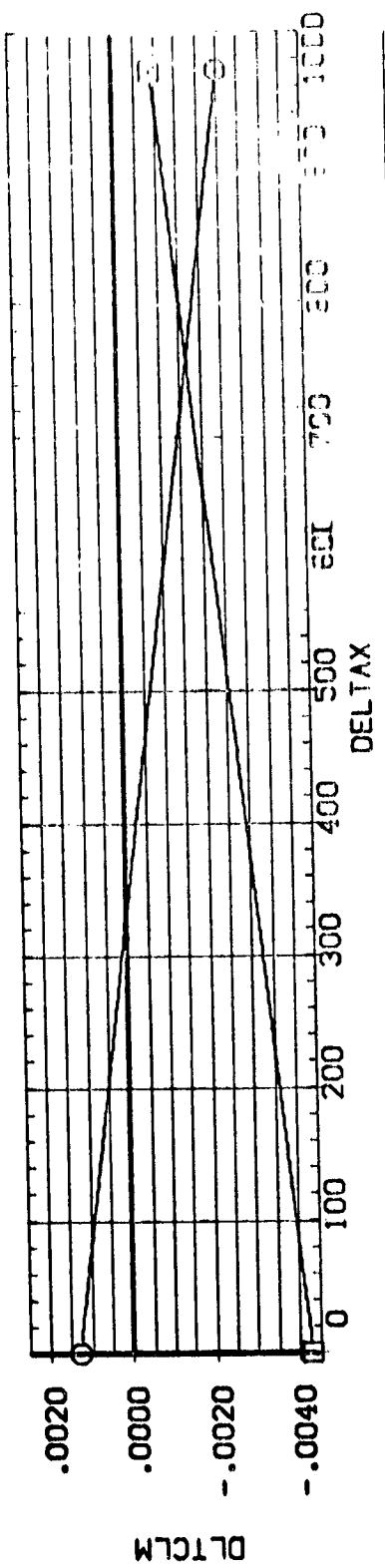
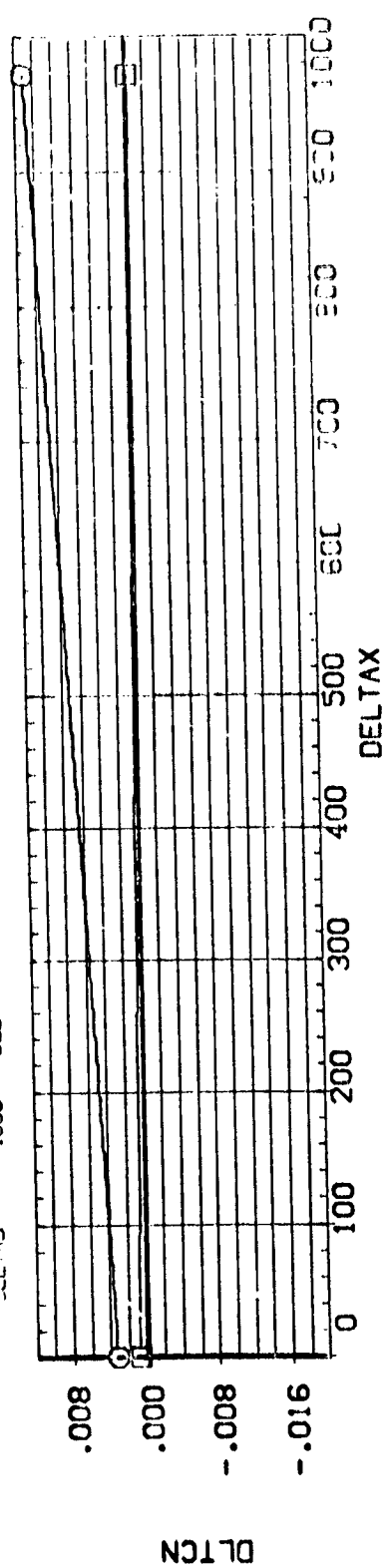
ELEVON EFFECTIVENESS- EXTERNAL TANK IN PRESENCE OF ORBITER





N571(1A6A) TANK(19)SEPARATING FROM ORBITER(012 095120)

| SYMBOL |   | DELTAZ  |        | PARAMETRIC VALUES |        | DATA SOURCE |         | REFERENCE INFORMATION |         |
|--------|---|---------|--------|-------------------|--------|-------------|---------|-----------------------|---------|
| ○      | □ | 162.000 | ALPHA  | 2.000             | BETA   | .000        | DATASET | DELTAZ                | REF     |
| ○      | □ | 495.000 | MACH   | 4.950             | CLTELV | -20.000     | 095120  | 162.000               | 162.000 |
|        |   |         | AILRON | .000              | RUDER  | .000        |         | 195.000               | 195.000 |
|        |   |         | RUDFLR | 40.000            | DELTA  | 5.000       |         | 195.000               | 195.000 |
|        |   |         | DELTA  | .000              | DELTA  | .000        |         | 195.000               | 195.000 |
|        |   |         |        |                   |        |             |         | SCALE                 | SCALE   |



ELEVON EFFECTIVENESS- EXTERNAL TANK IN PRESENCE OF ORBITER

**THE UNIVERSITY OF CHICAGO**

DATA SOURCE  
DELTA Z  
112.000

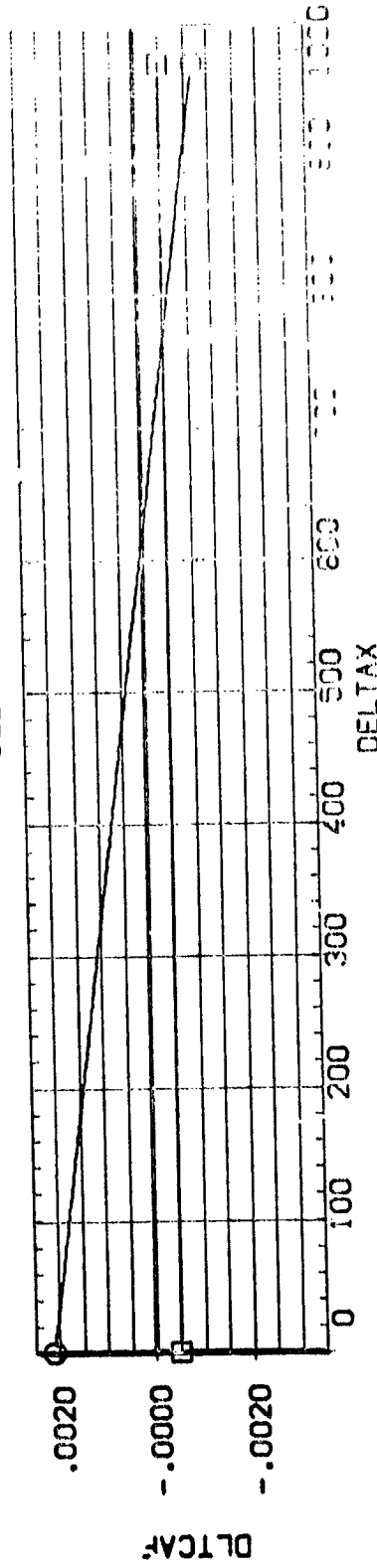
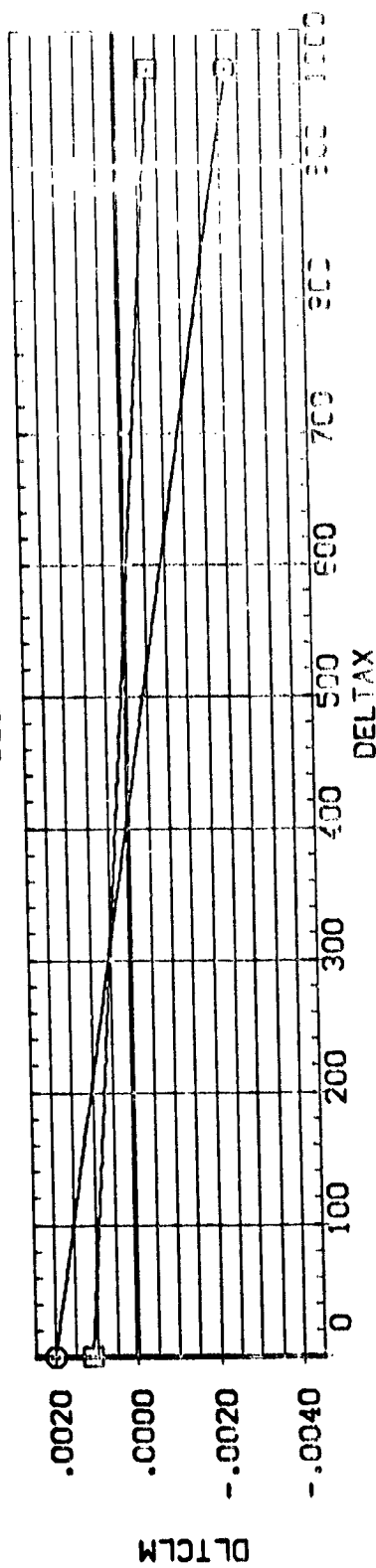
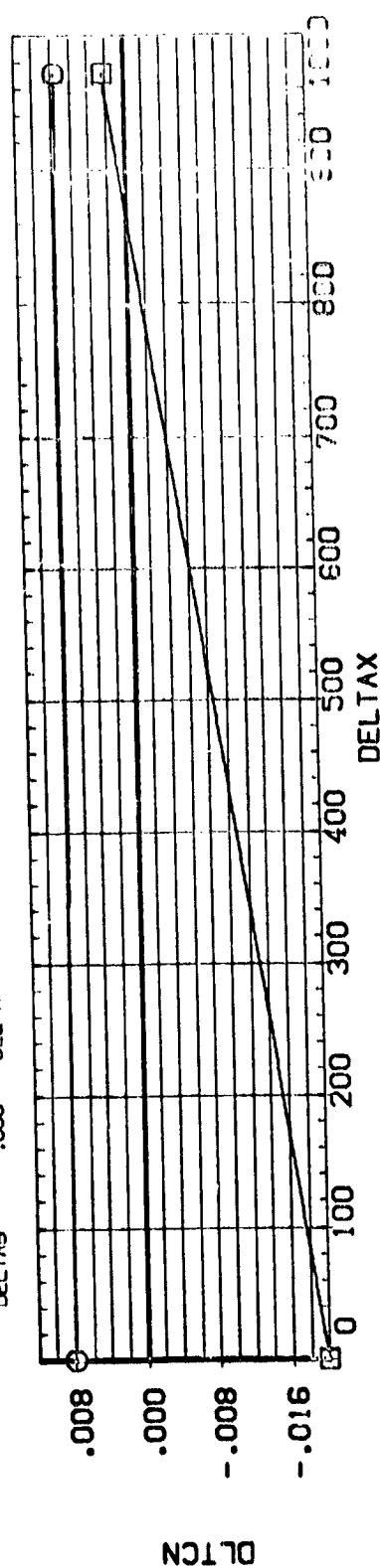
1,000 DATASET  
1,000 C95720  
1,000  
1,000  
1,000

|                   |      |        |        |         |         |
|-------------------|------|--------|--------|---------|---------|
| PARAMETRIC VALUES | BETA | OLTELV | RUGGER | DEL TAA | DEL TAY |
| 5.000             |      |        |        |         |         |
| 4.960             |      |        |        |         |         |
| .000              |      |        |        |         |         |
| 40.000            |      |        |        |         |         |
| .000              |      |        |        |         |         |

ALPHA  
MACH  
A ILRON  
RJOFLR  
DEL TAB

DELTAYZ  
167.000  
186.000

Symbol



ELEVON EFFECTIVENESS-EXTERNAL TANK IN PRESENCE OF TUBES



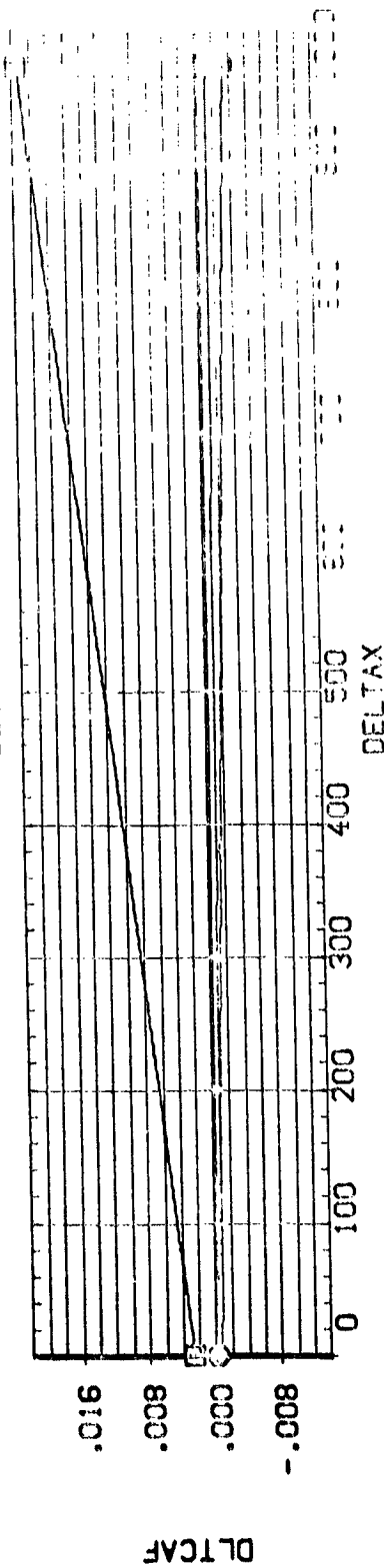
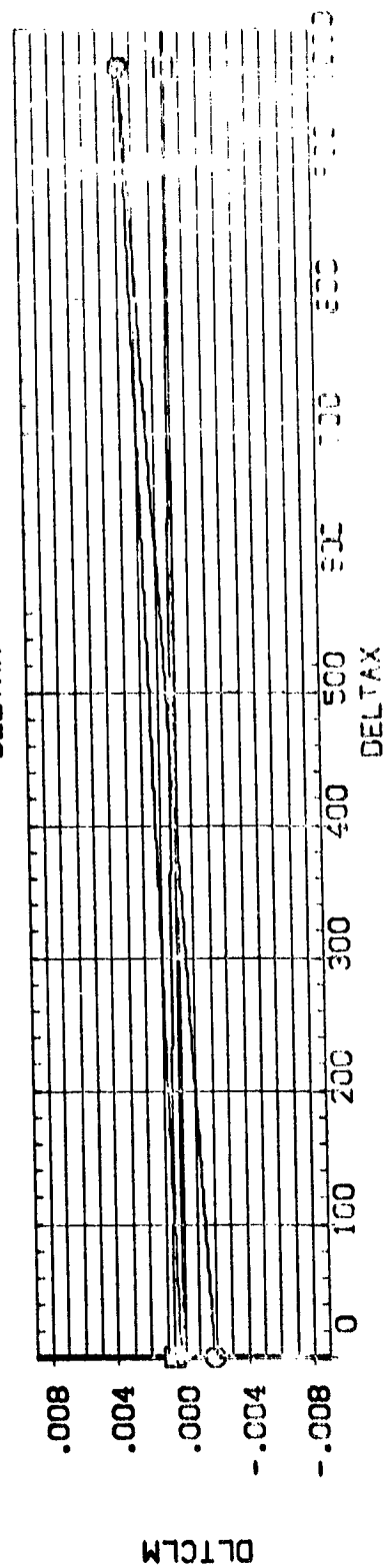
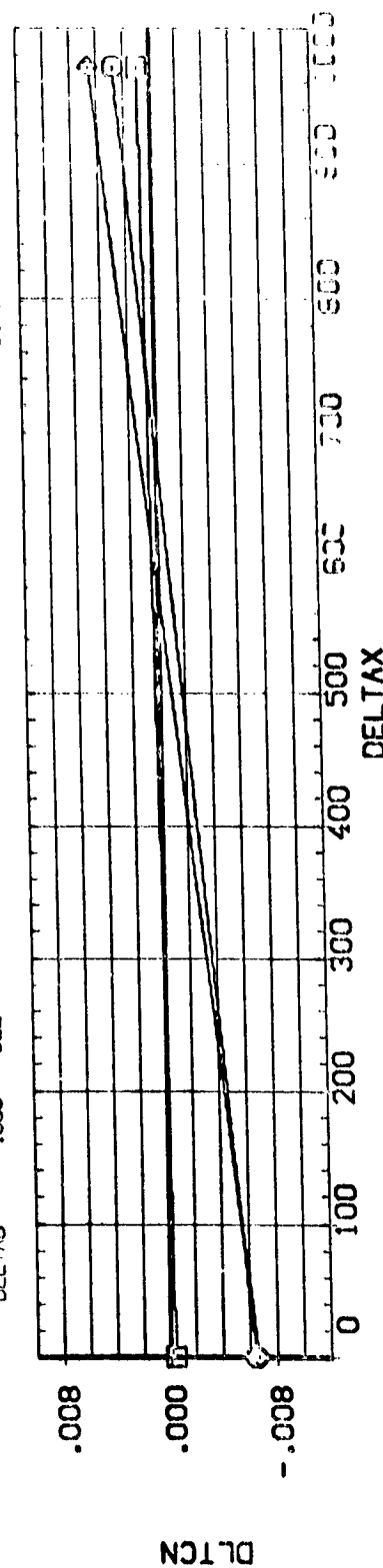
MS71C1A6A) YANKU (Y) SEPARATING FROM UNBILICAL CORD

00000000  
00000000  
00000000  
00000000  
00000000

[illegible]




| PARAMETRIC VALUES |         | DATASET |
|-------------------|---------|---------|
| -2.000            | BETA    | .000    |
| 4.950             | DLTCLV  | -40.000 |
| .000              | RUPPER  | .000    |
| 40.000            | DELTA A | .000    |
| .000              | DELTA Y | .000    |

| SYMBOL | DELTA Z |         |
|--------|---------|---------|
| ○      | .000    | ALPHA   |
| □      | 162.000 | MACH    |
| ◇      | 496.000 | ATLIRON |
|        |         | ROFLUR  |
|        |         | DELTA B |



# ELEVON EFFECTIVENESS-EXTERNAL TANK IN PRESENCE OF WING

[illegible]

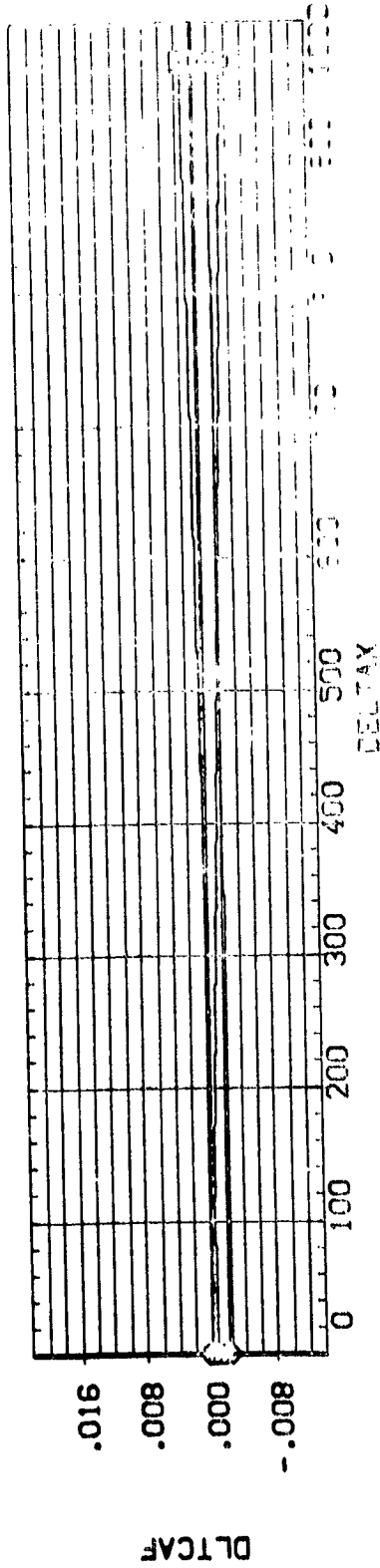
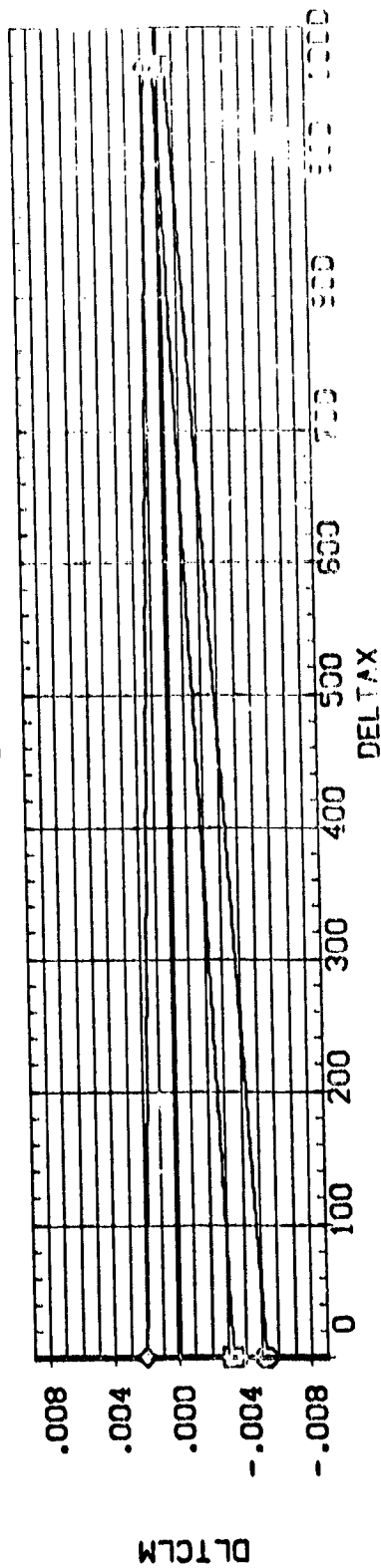
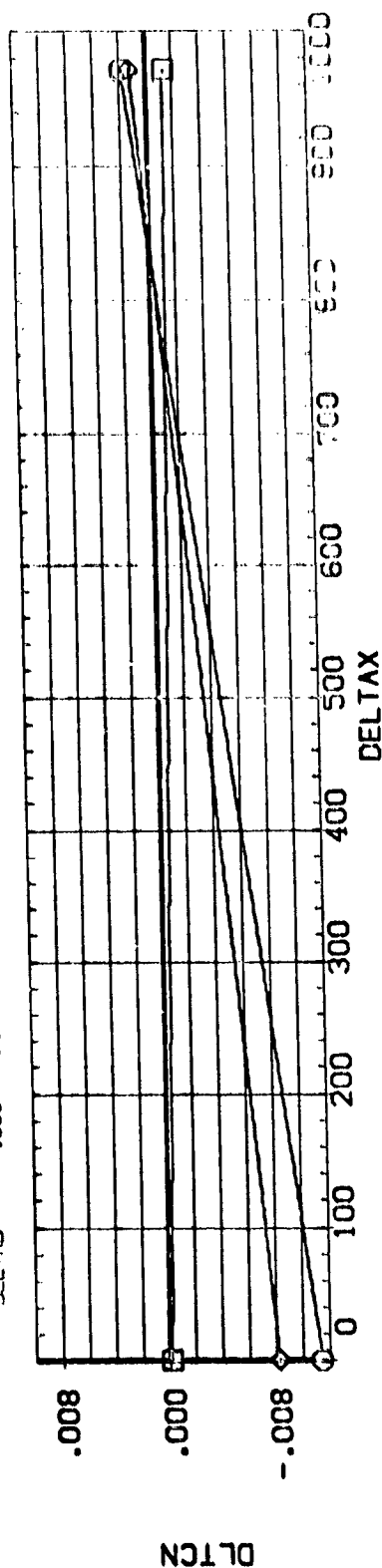
Symbol   

DELTAZ  
162.000  
496.000

|                   |        |
|-------------------|--------|
| PARAMETRIC VALUES |        |
| BETA              | .000   |
| DLTCLV            | 4.950  |
| RPOWER            | .000   |
| DELTAA            | 40.000 |
| DELTAY            | .000   |

|         | DATA SOURCE |
|---------|-------------|
| .000    | DELTAZ      |
| -40.000 | C85723      |
| .000    | C85726      |
| .000    |             |
| .000    |             |

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# ELEVON EFFECTIVENESS-EXTERNAL TANK IN FREEZE-UP TESTS

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00000000  
00000000

DELTA Z  
000.000  
162.000  
495.000

ALPHA  
MACH  
AILRON  
RUDOLF  
DELTAS

|                   |        |
|-------------------|--------|
| PARAMETRIC VALUES | BETA   |
| 2.000             | DLTCLV |
| 4.960             | RJDDR  |
| .000              | DELTAA |
| 40.000            | DELTAY |
| .000              |        |

|         | DATA SET | DELTA Z |
|---------|----------|---------|
| -40.000 | C85T23   | .000    |
| .000    | C85T26   | 486.000 |
| .000    |          |         |
| .000    |          |         |

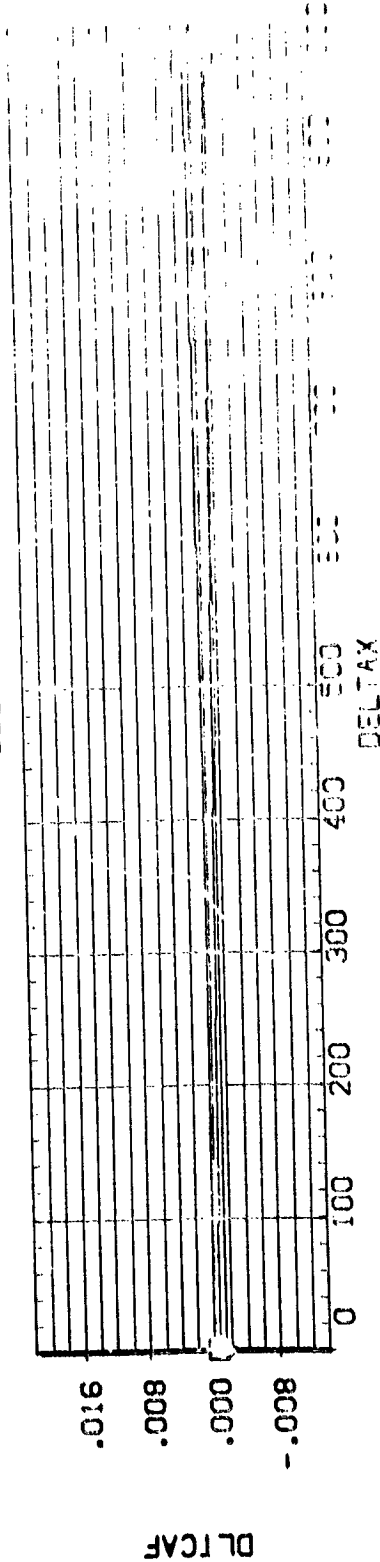
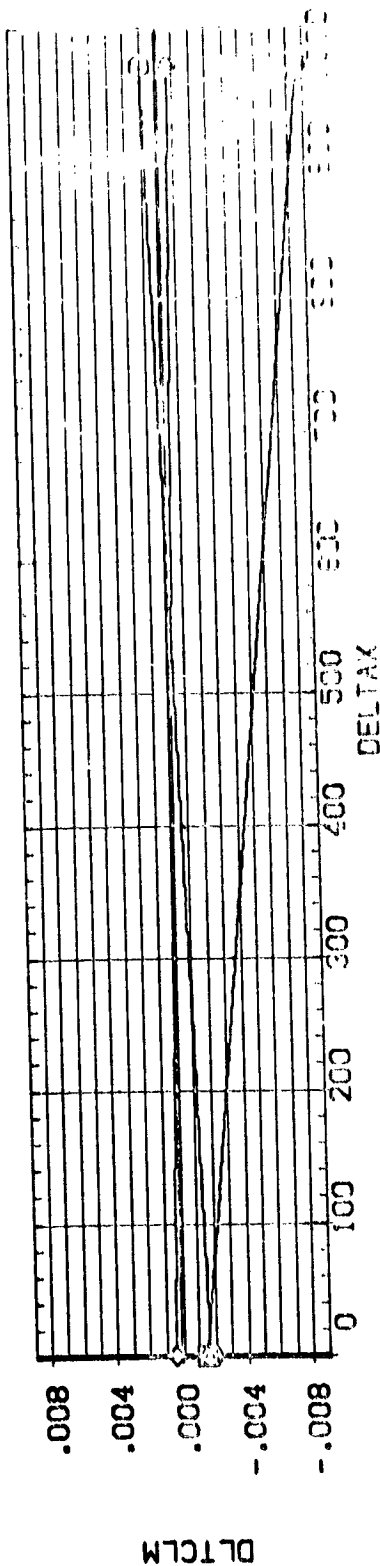
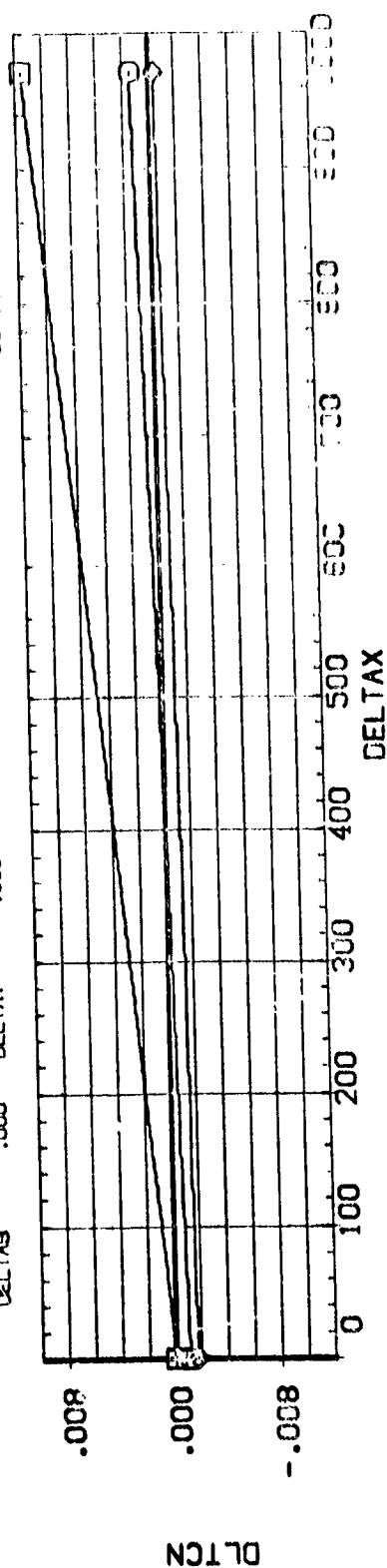
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62.000

SECRET

[illegible]

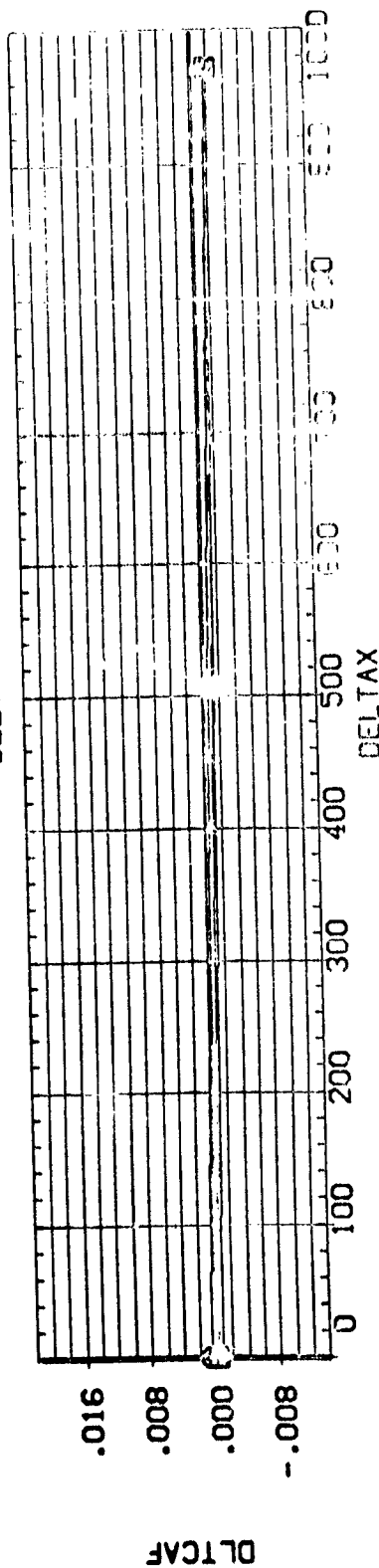
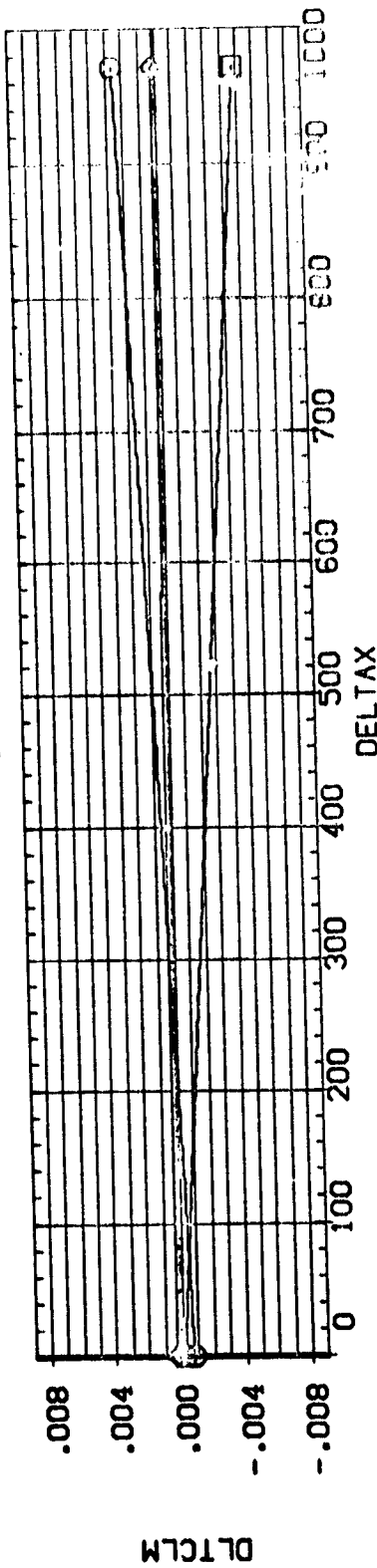
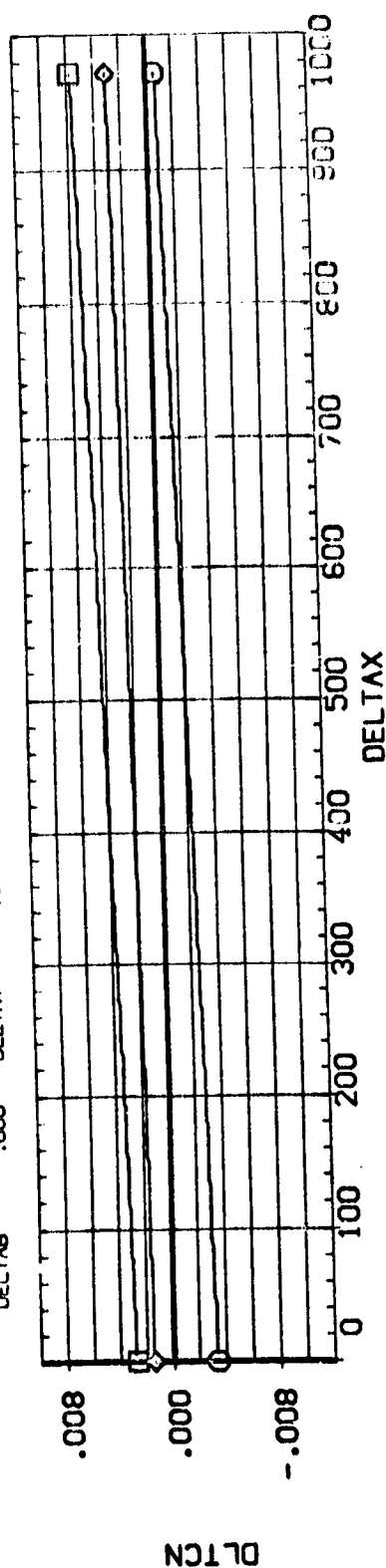
1. 1944



ELEVON EFFECTIVENESS-EXTERNAL TANK IN PREVIOUS TESTS

# M571(1A6A) TANK(T9)SEPARATING FROM ORBITER(013) (C85T23)

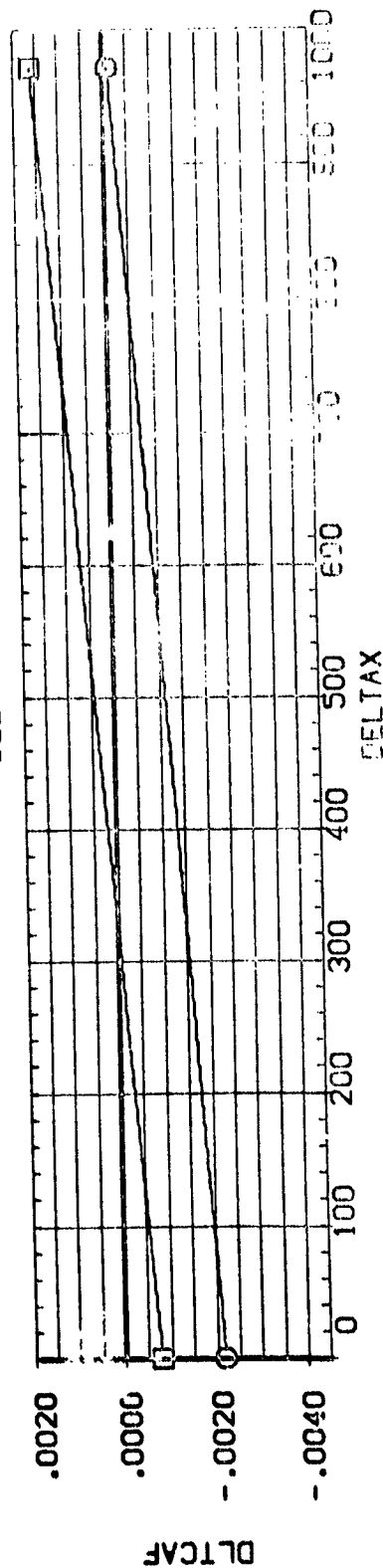
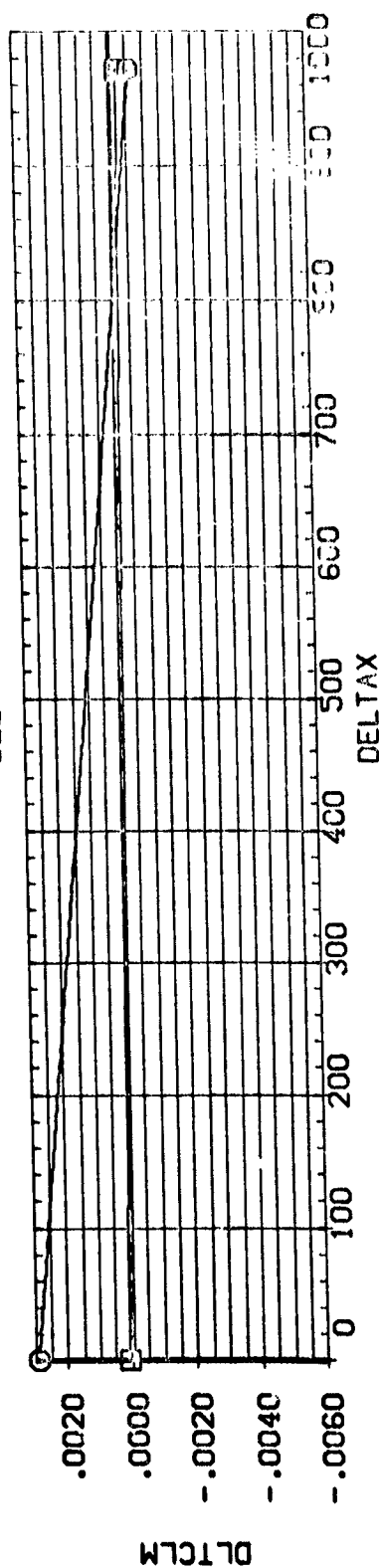
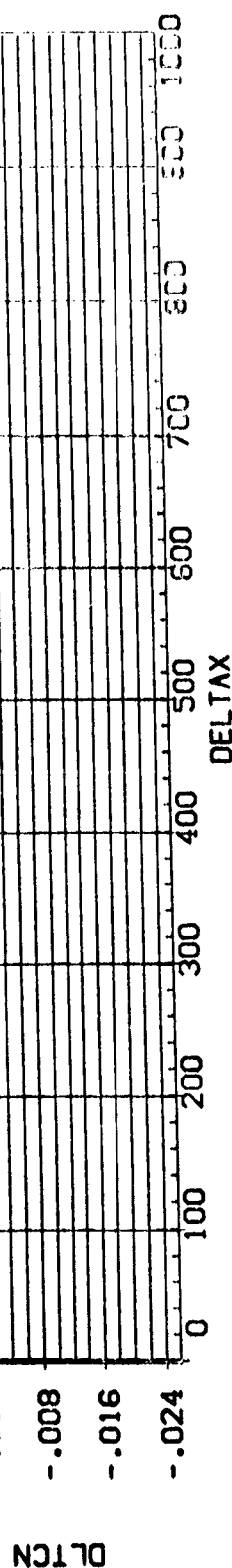
|        |         |         |        |                   |         |             |         |                       |           |
|--------|---------|---------|--------|-------------------|---------|-------------|---------|-----------------------|-----------|
| SYMBOL |         | DELTAZ  |        | PARAMETRIC VALUES |         | DATA SOURCE |         | REFERENCE INFORMATION |           |
| □      | .003    | ALPHA   | 5.000  | BETA              | .000    | DATASET     | DELTAZ  | SREF                  | 2590.0000 |
| □      | 162.000 | MACH    | 4.960  | CL TELV           | -40.000 | C85T23      | .000    | LREF                  | 1228.0000 |
| ◇      | 486.000 | AILRON  | .000   | RUDDER            | .000    | C85T26      | 486.000 | SREF                  | 1228.0000 |
|        |         | RJOF LR | 40.000 | DELTA             | .000    |             |         | XREF                  | 929.0000  |
|        |         | DELTA   | .000   | DELTA             | .000    |             |         | YREF                  | 1228.0000 |
|        |         |         |        |                   |         |             |         | ZREF                  | 1228.0000 |
|        |         |         |        |                   |         |             |         | SCALE                 | .0010     |



ELEVON EFFECTIVENESS- EXTERNAL TANK IN PRESENCE OF ORBITER



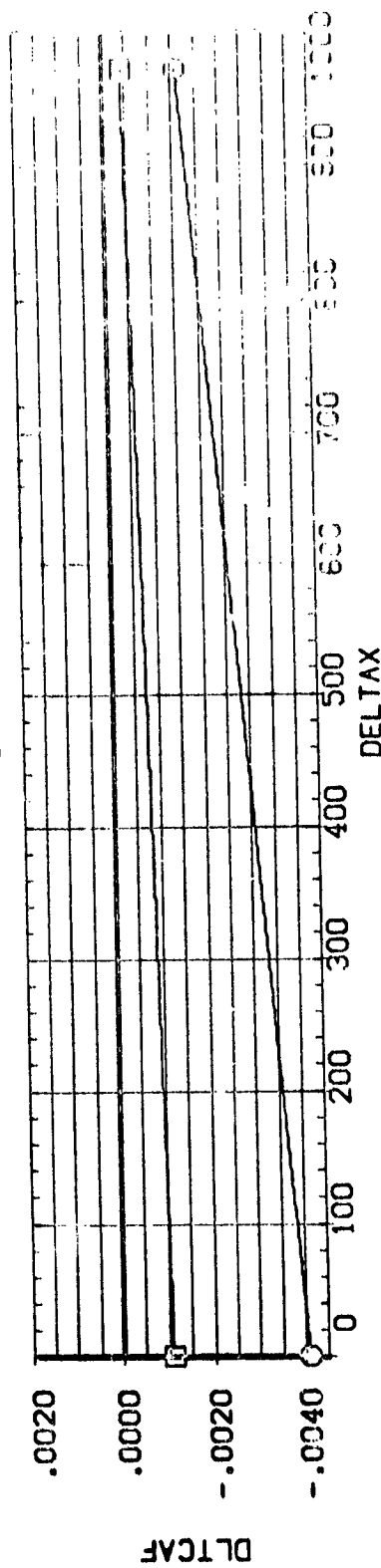
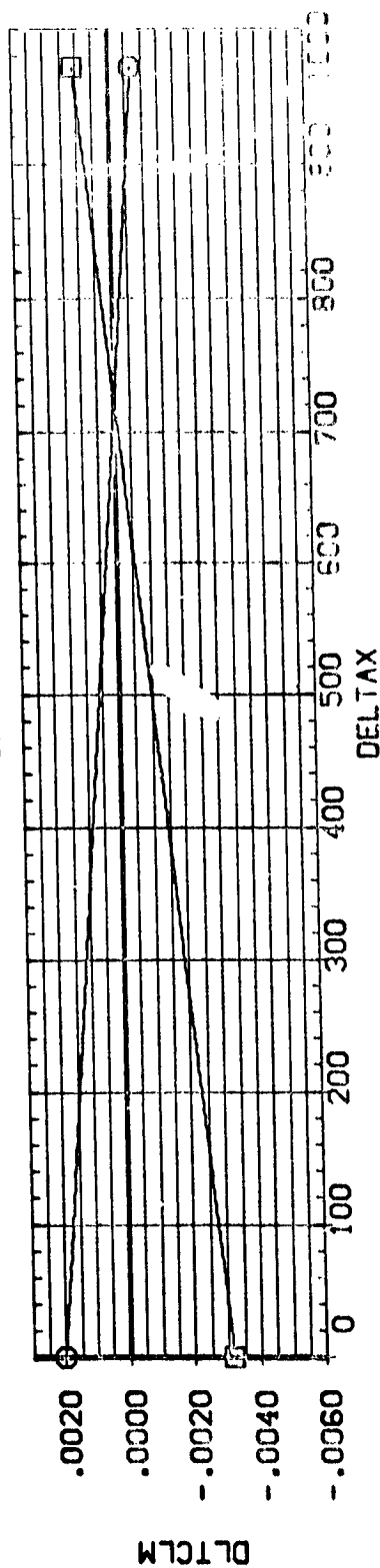
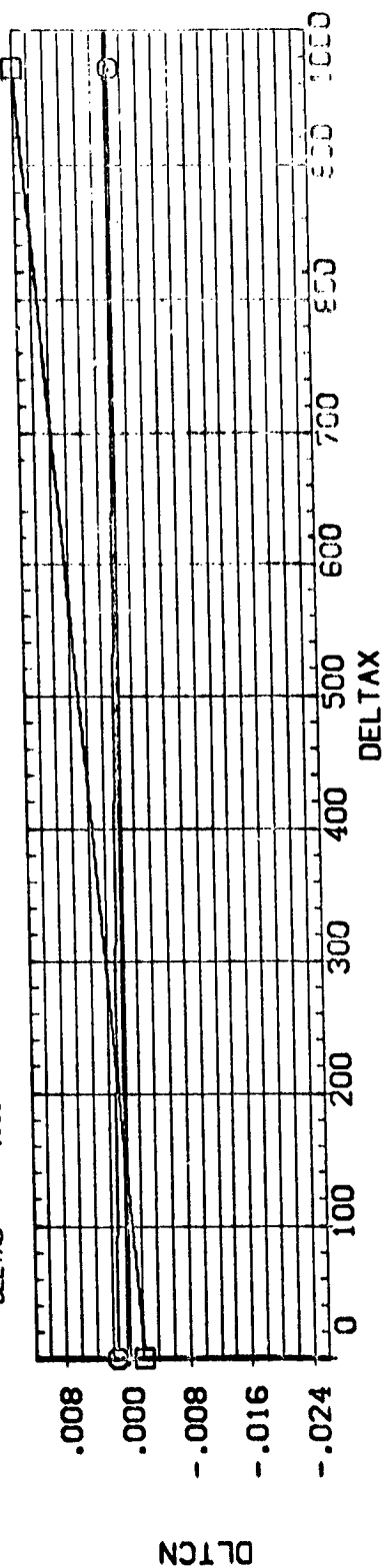
## M571(1A6A) TANK(T9)SEPARATING FROM ORBITER(013) (C85T25)

[illegible]

### ELEVON EFFECTIVENESS-EXTERNAL TANK IN PRESENCE OF CRIBBER

MS71(1A6A) TANK(T9)SEPARATING FROM ORBITER(013) (C85T25)

| SOURCE                             | SYMBOL   | DELTA Z | PARAMETRIC VALUES | DATA SOURCE | REFERENCE INFORMATION |
|------------------------------------|----------|---------|-------------------|-------------|-----------------------|
| NORTH ATLANTIC TREATY ORGANIZATION | ALPHA    | .000    | BETA              | DELTA Z     | REF                   |
|                                    | MACH     | 4.960   | DL TEL V          | DATASET     | REF                   |
|                                    | AIRLON   | .000    | RUDER             | C85T25      | REF                   |
|                                    | RUEFLR   | 40.000  | DELTA A           | 495.000     | REF                   |
|                                    | DEFI TAB | .000    | DELTA Y           | C85T27      | REF                   |
|                                    |          |         |                   |             | X-REP                 |
|                                    |          |         |                   |             | SCALE                 |
|                                    |          |         |                   |             |                       |



# ELEVON EFFECTIVENESS- EXTERNAL TANK IN PRESENCE OF CRITTER

1111  
1112  
1113  
1114  
1115  
1116

5000

DELTAZ  
162.000  
486.000

ALPHA  
MACH  
A I L R O N  
R J O F L R  
D E L T A B

|           |  |
|-----------|--|
| PARAMETER |  |
| 2.000     |  |
| 4.960     |  |
| .000      |  |
| 40.000    |  |
| .000      |  |

VALUES  
ETA  
LTELV  
UODER  
ELTAA  
ELTAY

100.000  
0.000  
5.000  
0.000

SET 135  
25

SOURCE  
Z  
00

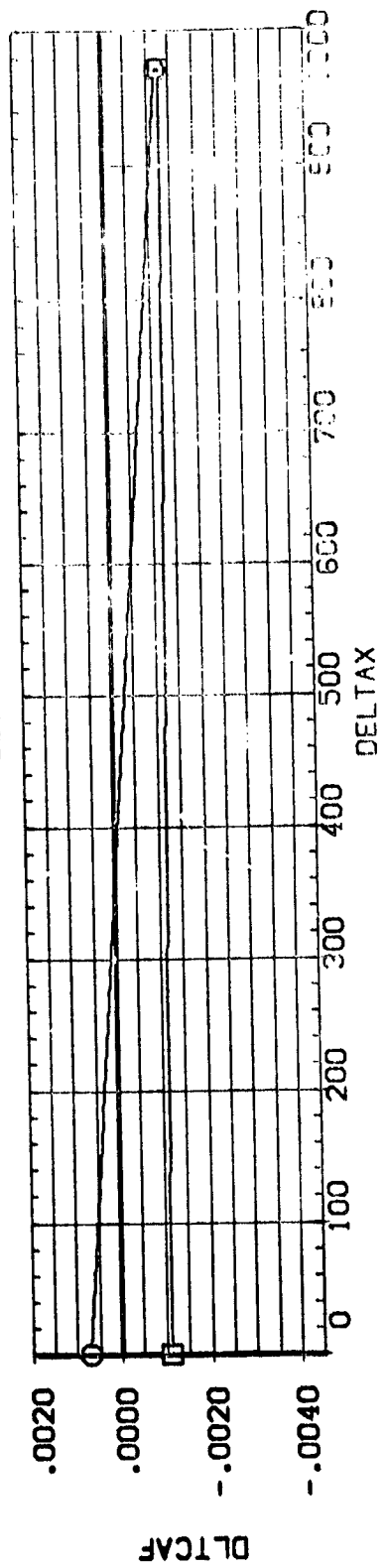
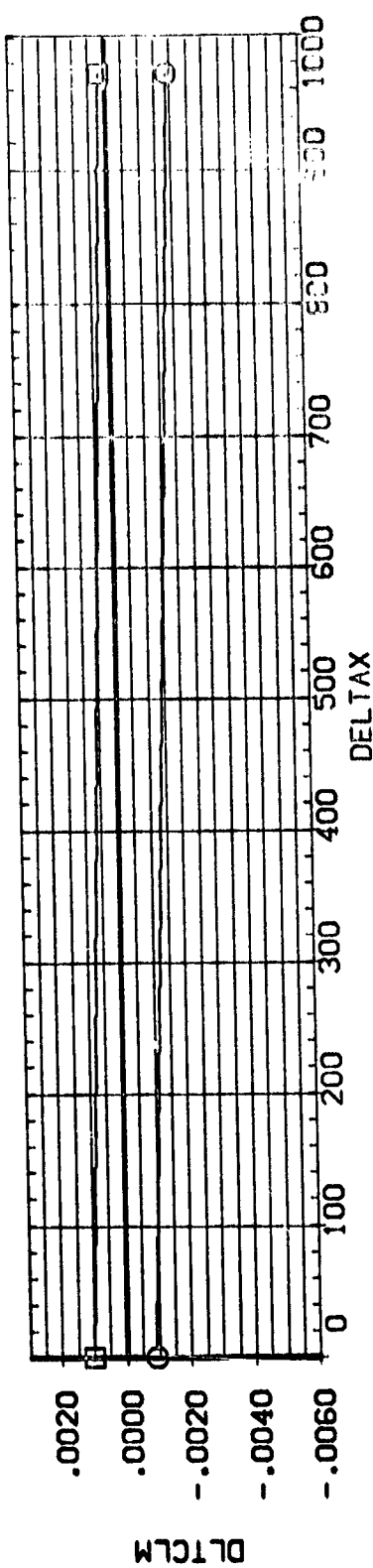
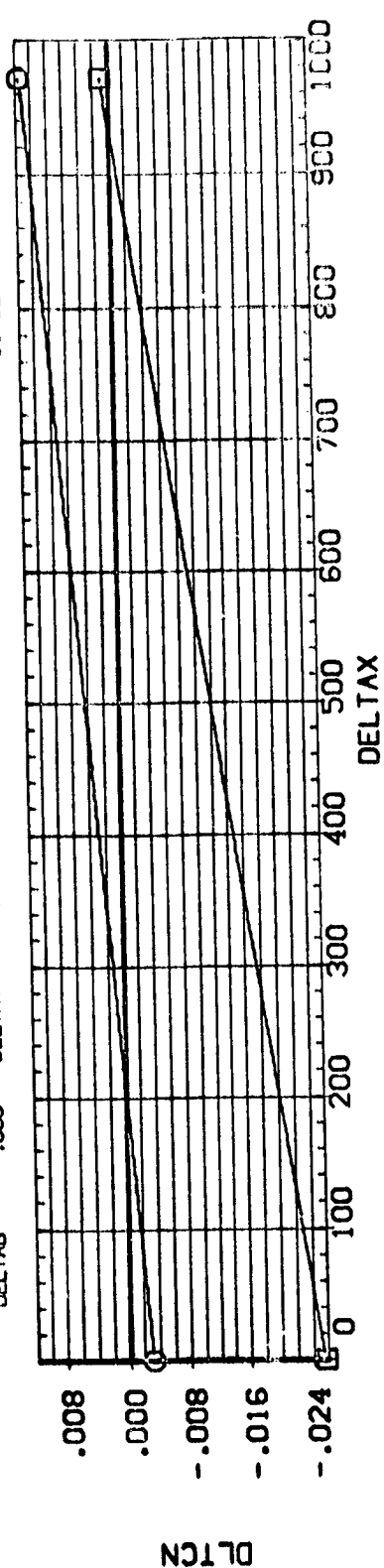
ASSET  
L27

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2680  
1328  
1328  
928

[illegible]

7.



### LEVELON EFFECTIVENESS- EXTERNAL TANK IN PRESENCE OF TRBITER

ALPHA  
MACH  
AIRLON  
RJOFLR  
DELTAB

|                   |        |
|-------------------|--------|
| PARAMETRIC VALUES | BETA   |
| 5.000             | DLTELV |
| 4.950             | RUDDER |
| .000              | DELTAA |
| 40.000            | DELTAY |
| .000              |        |

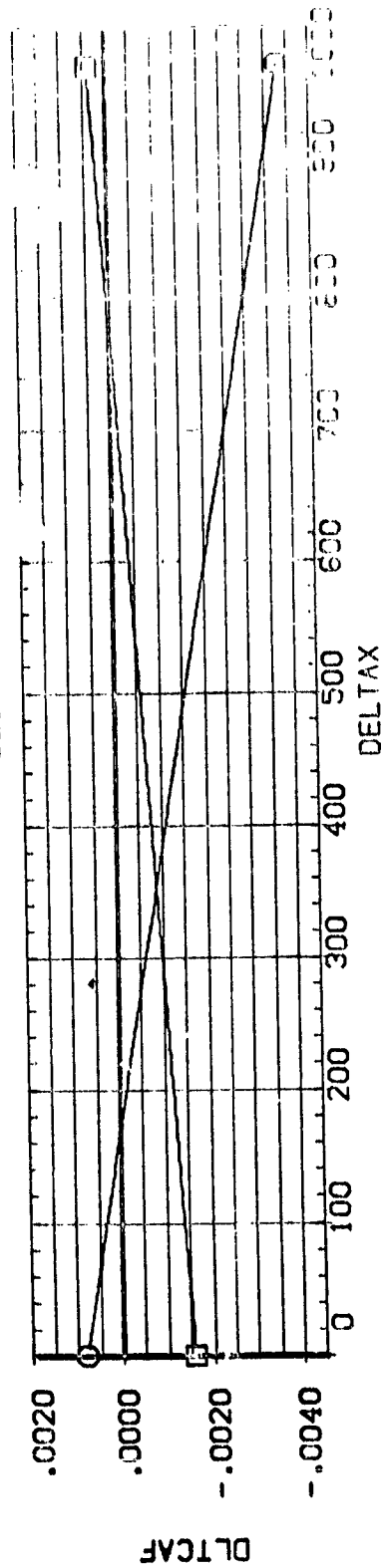
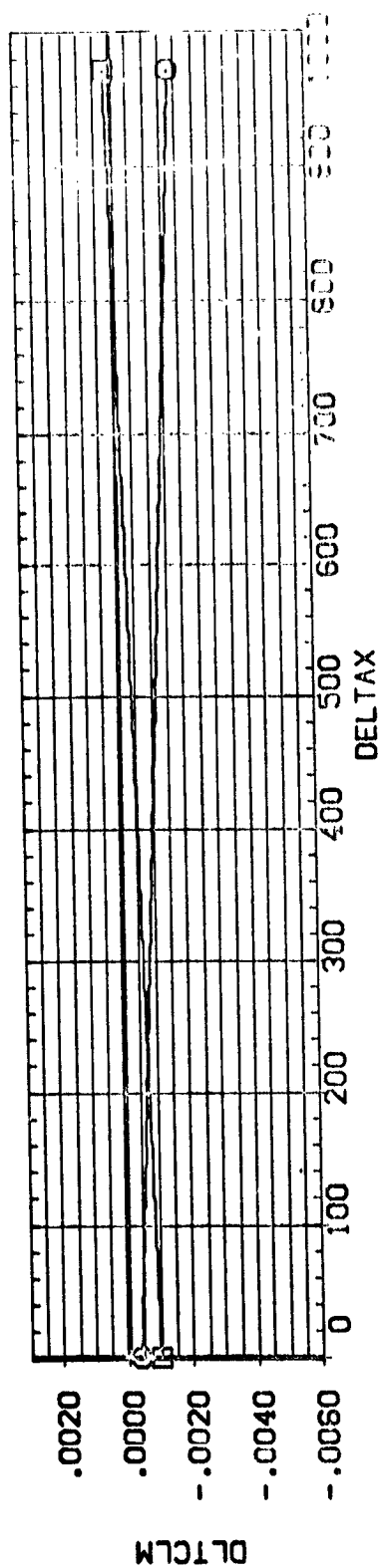
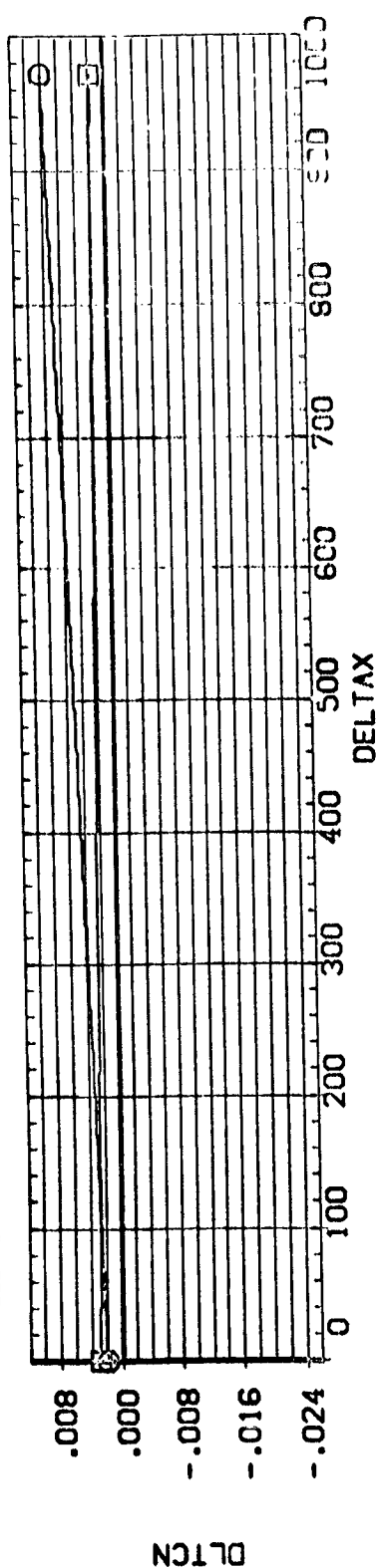
| DATA SOURCE | DELTA  | DELTA TAX |
|-------------|--------|-----------|
| .000        | 085125 | 162.000   |
| -40.000     |        |           |
| .000        |        |           |
| 5.000       |        |           |
| .000        |        |           |

DATA SOURCE

256  
1354.10

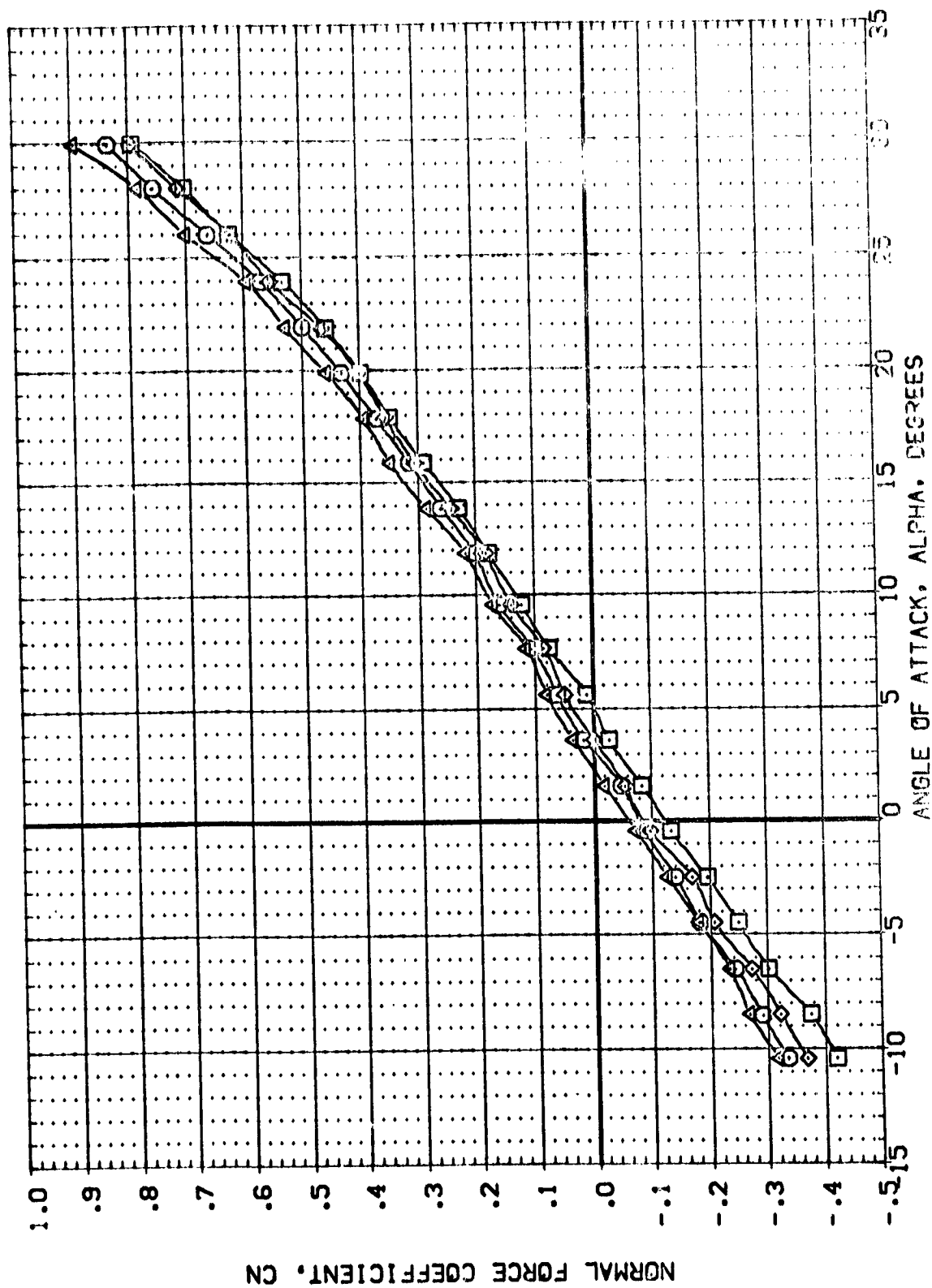
DELTA Z  
486.000

SCALE  
2000  
1000  
500  
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100  
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10  
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ELEVON EFFECTIVENESS- EXTERNAL TANK IN PRESENCE OF GUSTS

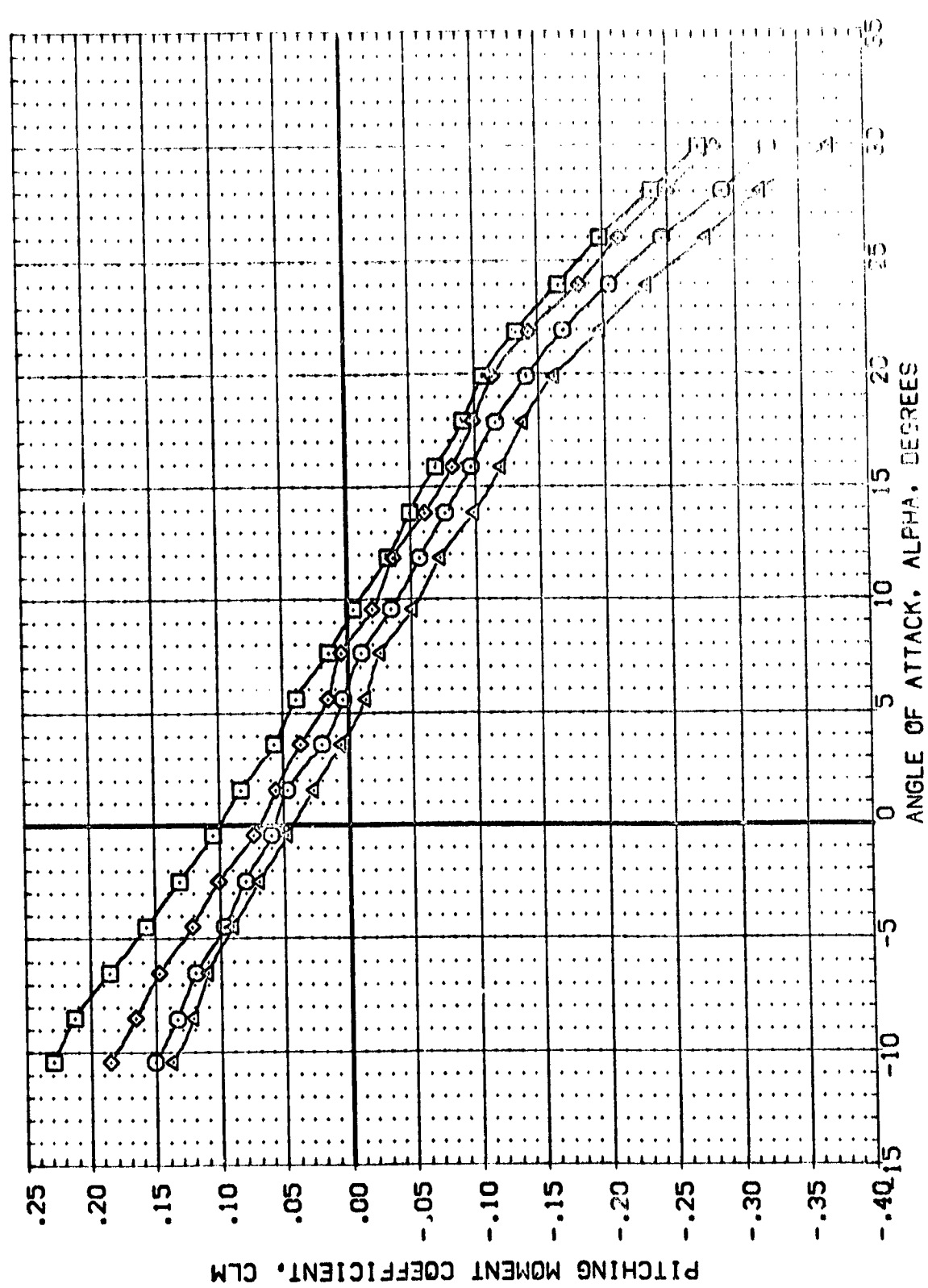
|                 |                                        |       |         |        |        |                       |           |
|-----------------|----------------------------------------|-------|---------|--------|--------|-----------------------|-----------|
| DATA SET SYMBOL | CONFIGURATION DESCRIPTION              | MACH  | ELEVTR  | AIRLON | RUEFLR | REFERENCE INFORMATION | 50.FT.    |
| (S95[04])       | M571((ASA) MATED CONFIGURATION (01319) | 4.960 | -40.000 | .000   | 40.000 | SREF                  | 2850.0000 |
| (S95[03])       | M571((ASA) MATED CONFIGURATION (01319) | 4.960 | -20.000 | .000   | 40.000 | UREF                  | 1250.3000 |
| (S95[01])       | M571((ASA) MATED CONFIGURATION (01319) | 4.960 | 10.000  | .000   | 40.000 | UREF                  | 1373.5000 |
| (S95[02])       | M571((ASA) MATED CONFIGURATION (01319) | 4.960 | 10.000  | .000   | 40.000 | XREF                  | 635.0000  |
|                 |                                        |       |         |        |        | YREF                  | 1000.0000 |
|                 |                                        |       |         |        |        | ZREF                  | 1000.0000 |
|                 |                                        |       |         |        |        | SCALE                 | .0000     |



BASIC DATA- INTEGRATED VEHICLE- ELEVON EFFECTIVENESS

(A) DELTAX= .00

DATA SET SYMBOL LOW DURATION DURATION UNIT  
 (S85)04 MS71(IABA) MATED CONF GURATION (01319)  
 (S85)03 MS71(IABA) MATED CONF GURATION (01319)  
 (S85)01 MS71(IABA) MATED CONF GURATION (01319)  
 (S85)02 MS71(IABA) MATED CONF GURATION (01319)  
 SREF 2550 4000  
 LREF 1328 3000  
 BREF 1328 3000  
 XREF 555 1000  
 YREF 1000  
 ZREF 1000  
 SCALE 10000



BASIC DATA- INTEGRATED VEHICLE- ELEVON EFFECTIVENESS

(A) DELTAX = .00



DATA SET SYMBOL: MS71(11ASA) MATED CONFIGURATION (01319)  
 (S85101) ☐ MS71(11ASA) MATED CONFIGURATION (01319)

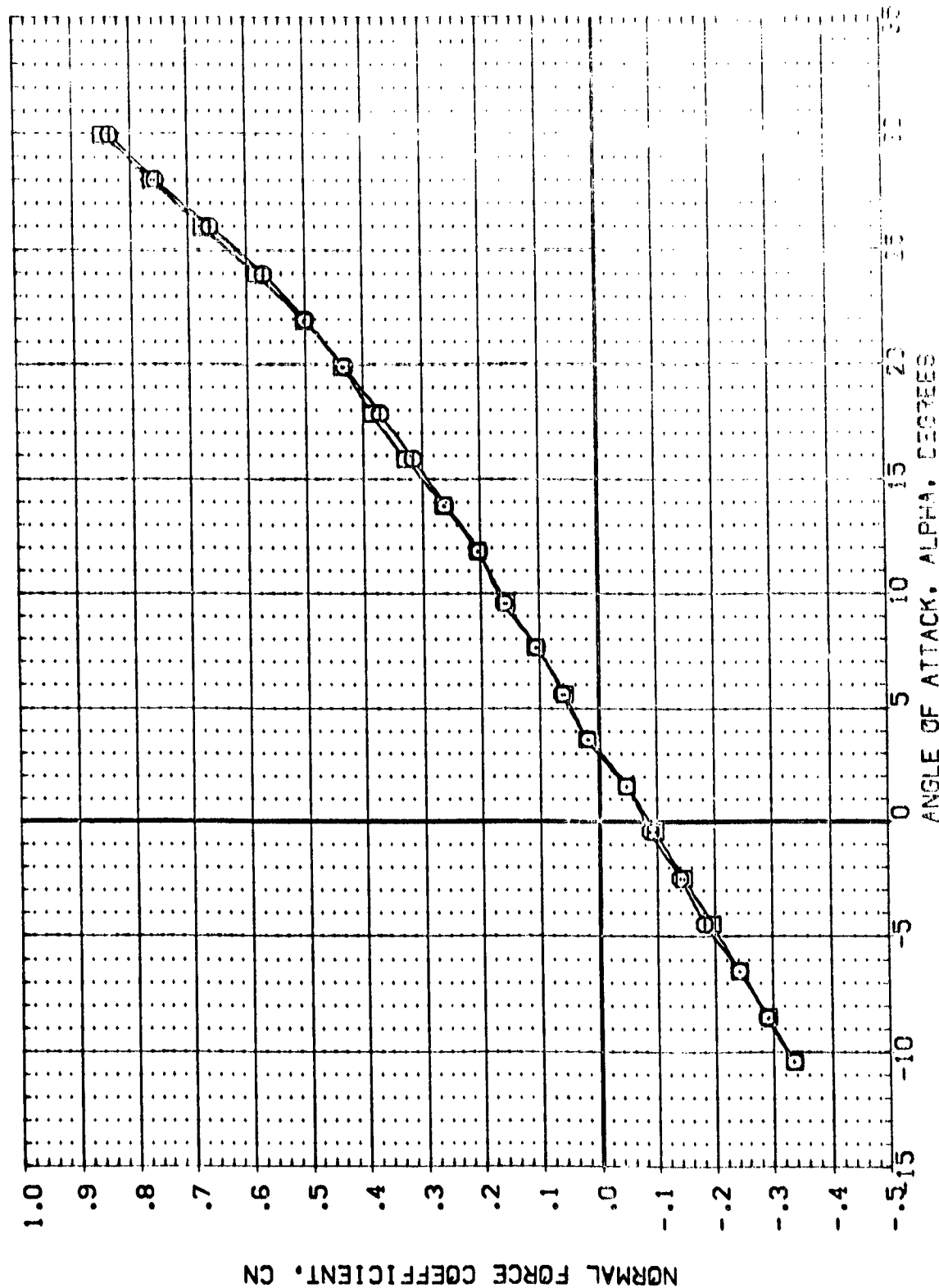
MACH: 4.960  
 4.960

ELEVTR: .000  
 .000

AILERON: .000  
 10.000


RODCLR: 40.000  
 40.000

REFERENCE INFORMATION:  
 SPEED: 2500.0000  
 ALT: 10000.0000  
 WEIGHT: 1300.0000  
 XREF: 1300.0000  
 YREF: 500.0000  
 ZREF: 1000.0000  
 SCALE: 10000



BASIC DATA- INTEGRATED VEHICLE- AILERON EFFECTIVENESS

(A) DELTAX= .00

DATA SET SYMBOL: (S85101) (S85105)  CONFIGURATION DESCRIPTION: M571((AGA)) MATED CONFIGURATION (01319) M571((AGA)) MATED CONFIGURATION (01319)

MACH: 4.960  
4.960

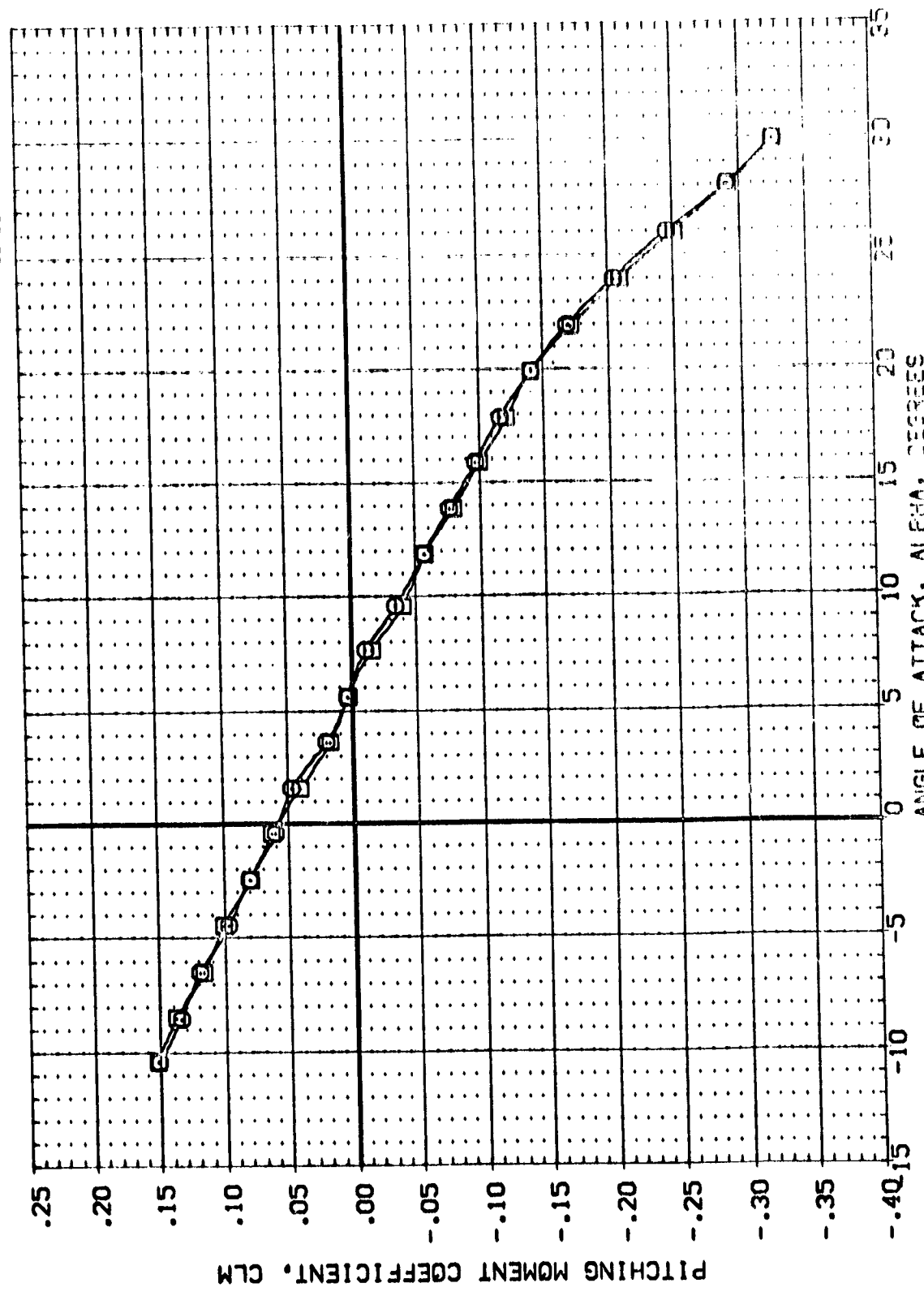
ELEVTR: .000  
.000

ALLRON: .000  
10.000

RUDFLR: 40.000  
40.000

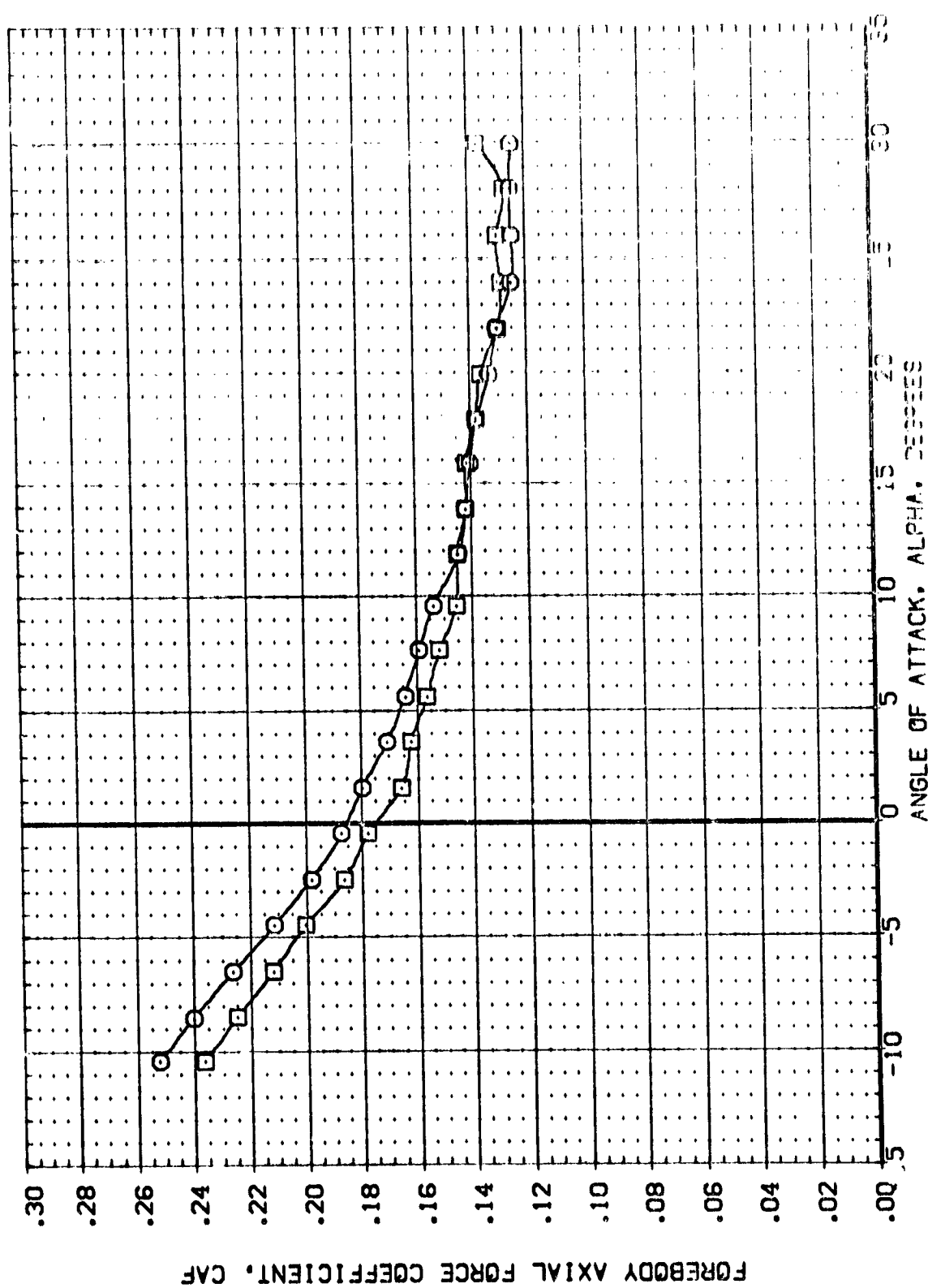
REFERENCE INFORMATION:

|       |           |        |
|-------|-----------|--------|
| SREF  | 2680.0000 | SQ.FT. |
| LREF  | 1328.3000 | IN.    |
| BREF  | 1328.3000 | IN.    |
| WREF  | 635.0000  | IN.    |
| HREF  | 1000.0000 | IN.    |
| SCALE | 1.0000    |        |



BASIC DATA- INTEGRATED VEHICLE- ALLRON EFFECTIVENESS IN PITCH

(A)DELTA= .00

[illegible]

BASIC DATA- INTEGRATED VEHICLE-AILERON EFFECTIVENESS IN STIC-

(CADDELTAX=.00

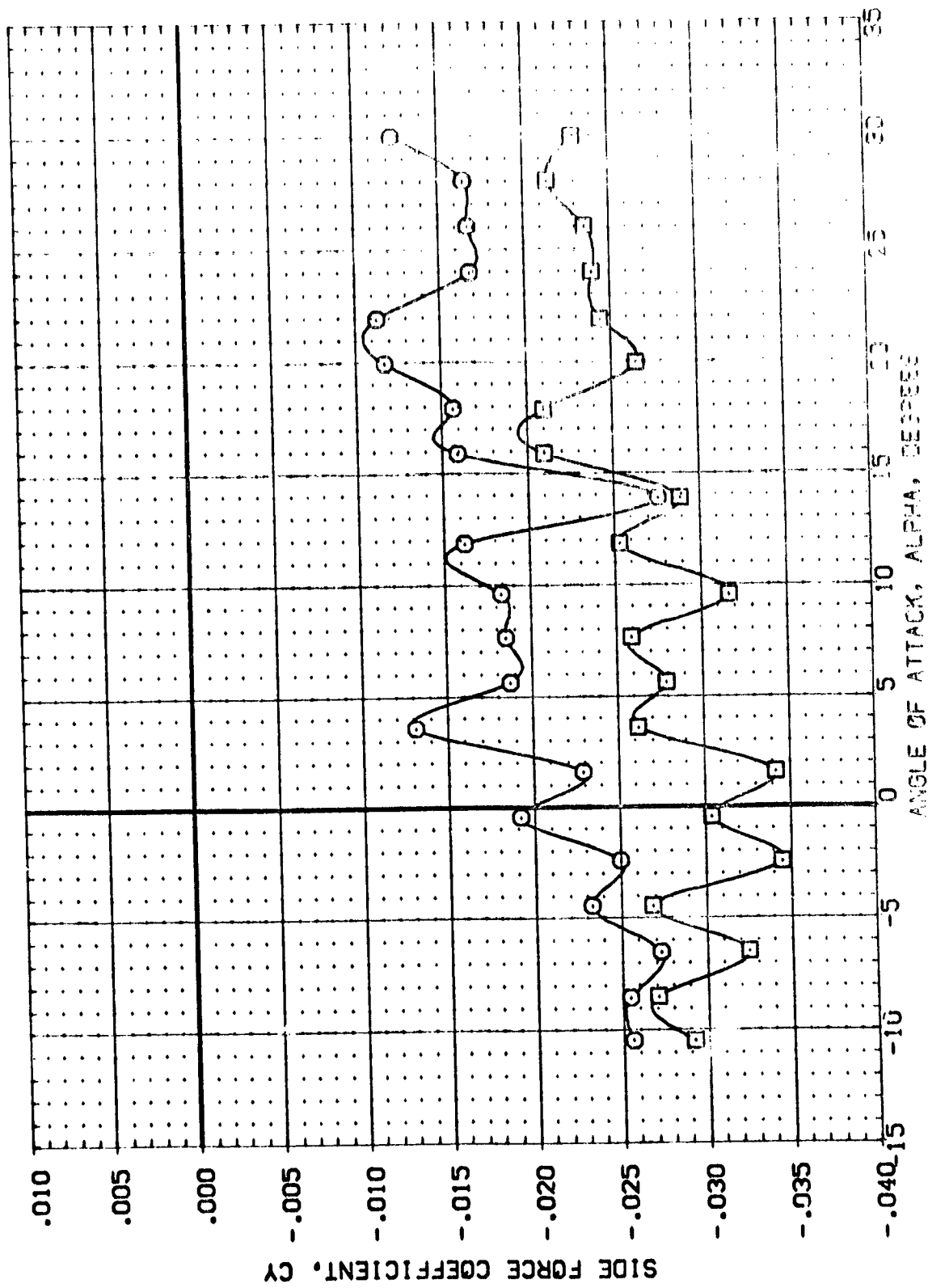
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DATA SET SYMBOL: (S8S101) ☐ (S8S105) ☐ CONFIGURATION DESCRIPTION: M571(LASA) MATED CONFIGURATION (01379) M571(LASA) MATED CONFIGURATION (01379)

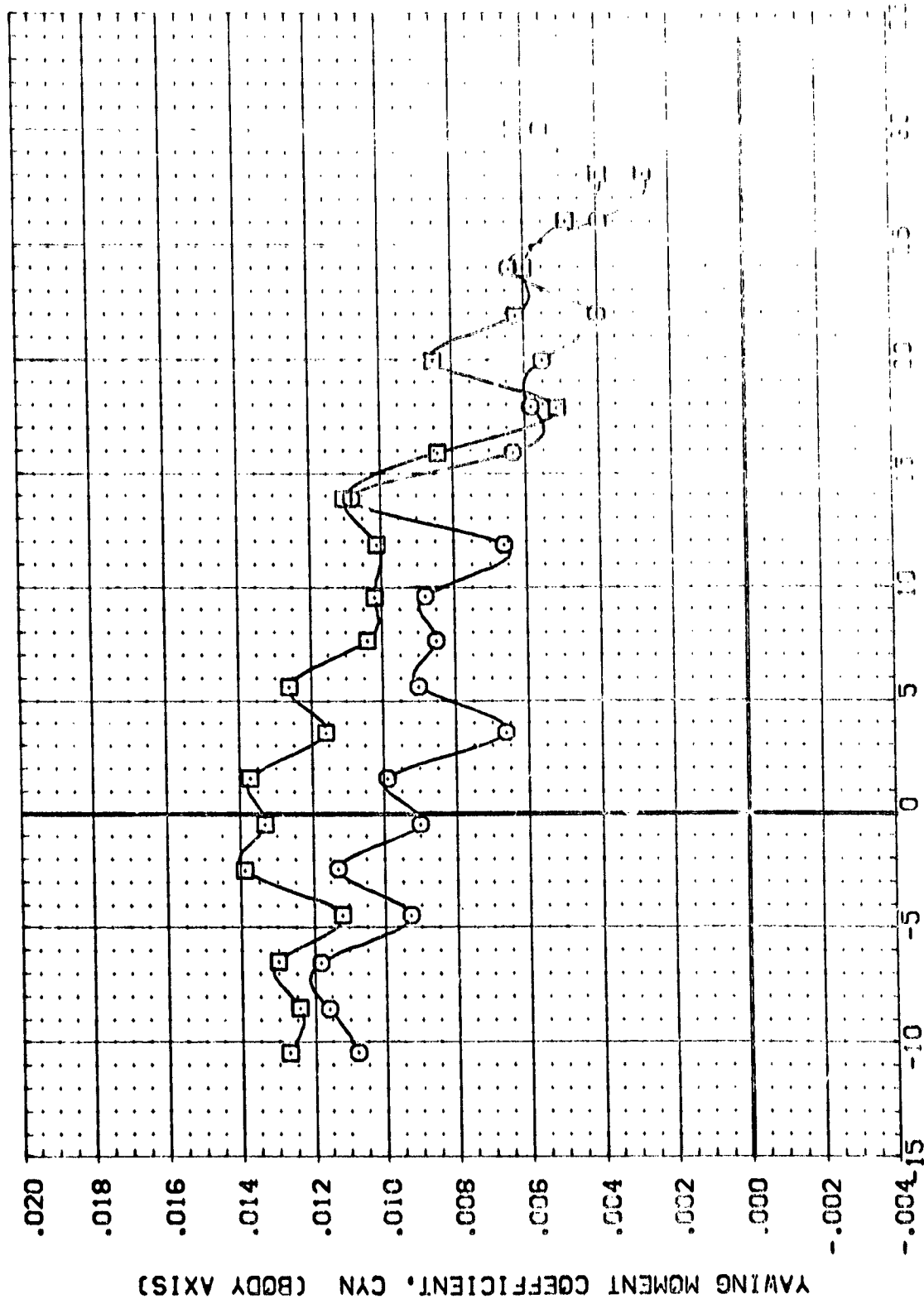
MACH: 4.950  
ELEVTR: .000  
AIRLON: .000  
RUDLR: 40.000  
40.000

REFERENCE INFORMATION:  
SHEET: 2550.0000  
PAGE: 22.0000  
DATE: 11/18/2000  
TIME: 13:00:00  
SCALE: 10000



BASIC DATA- INTEGRATED VEHICLE- AIRLON EFFECTIVE 199 IN PLO-

(AJDELTA)X= .00

[illegible]

BASIC DATA- INTEGRATED VEHICLE- ALLERON RESEARCH

CASELTX=.00

DATA SET SYMBOL: ☐ M571(LASA) MATED CONFIGURATION (013T9)  
 (S85101) ☐ M571(LASA) MATED CONFIGURATION (013T9)  
 (S85105)

MACH: 4.960  
 4.960  
 4.960

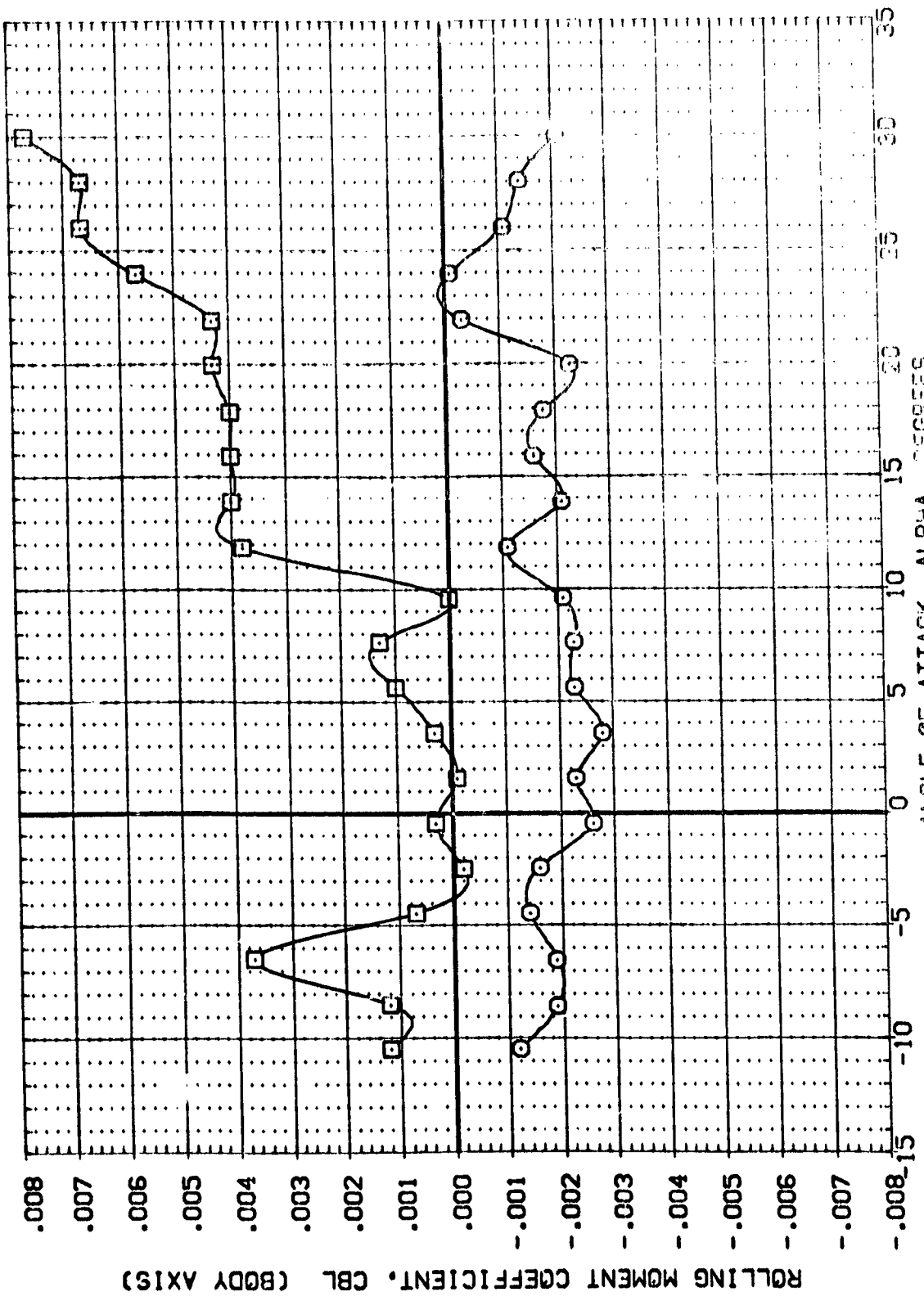
ELEVTR: .000  
 .000  
 .000

AILERON: .000  
 .000  
 .000

RUDFLR: 40.000  
 40.000  
 40.000

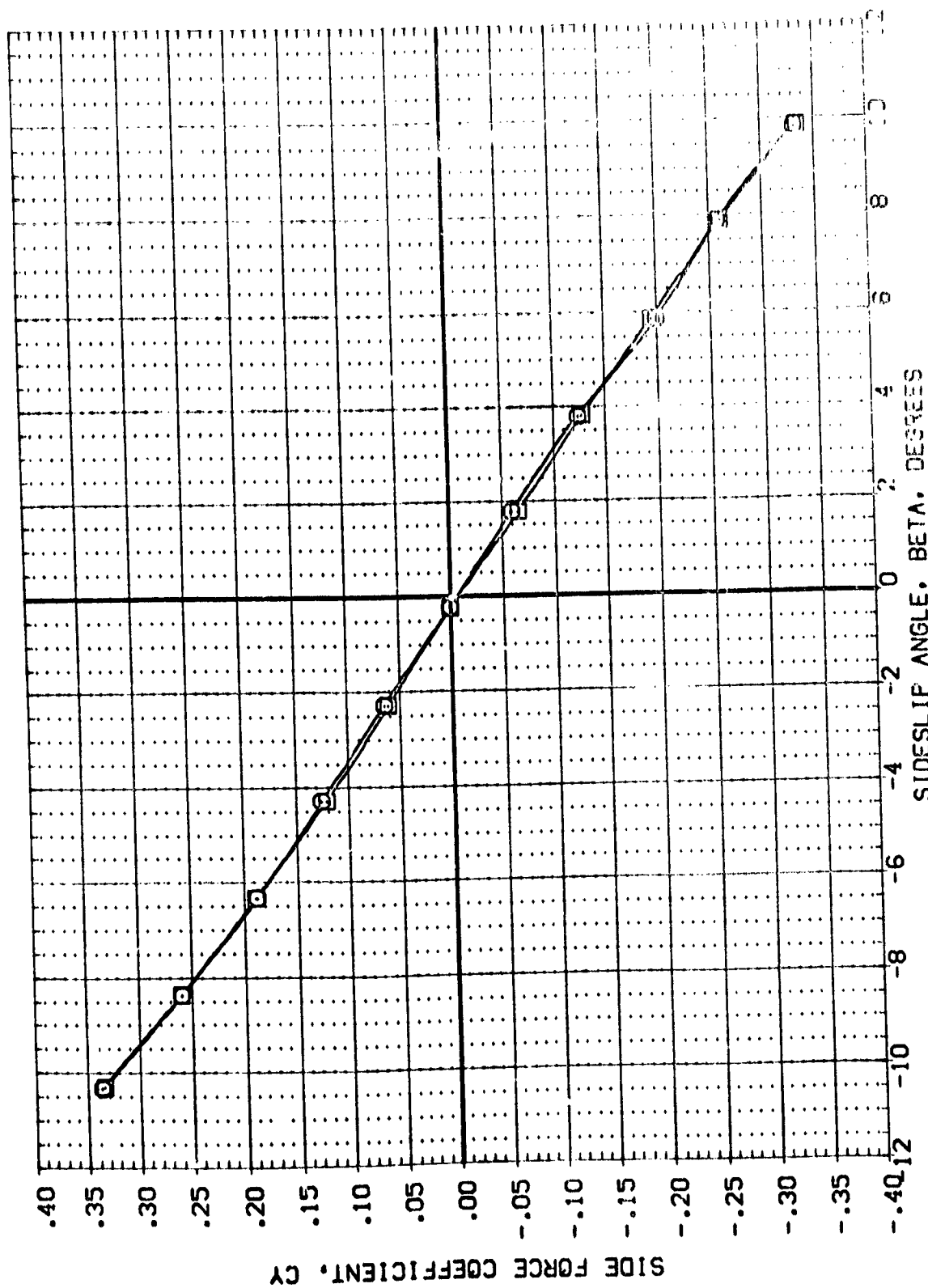
REFERENCE DISCREPATION: 1.000  
 1.000  
 1.000

SCALE: 1.000  
 1.000  
 1.000



BASIC DATA- INTEGRATED VEHICLE- AILERON EFFECTIVENESS IN F117

77777  
888888  
999999  
0000  
1111  
2222222222

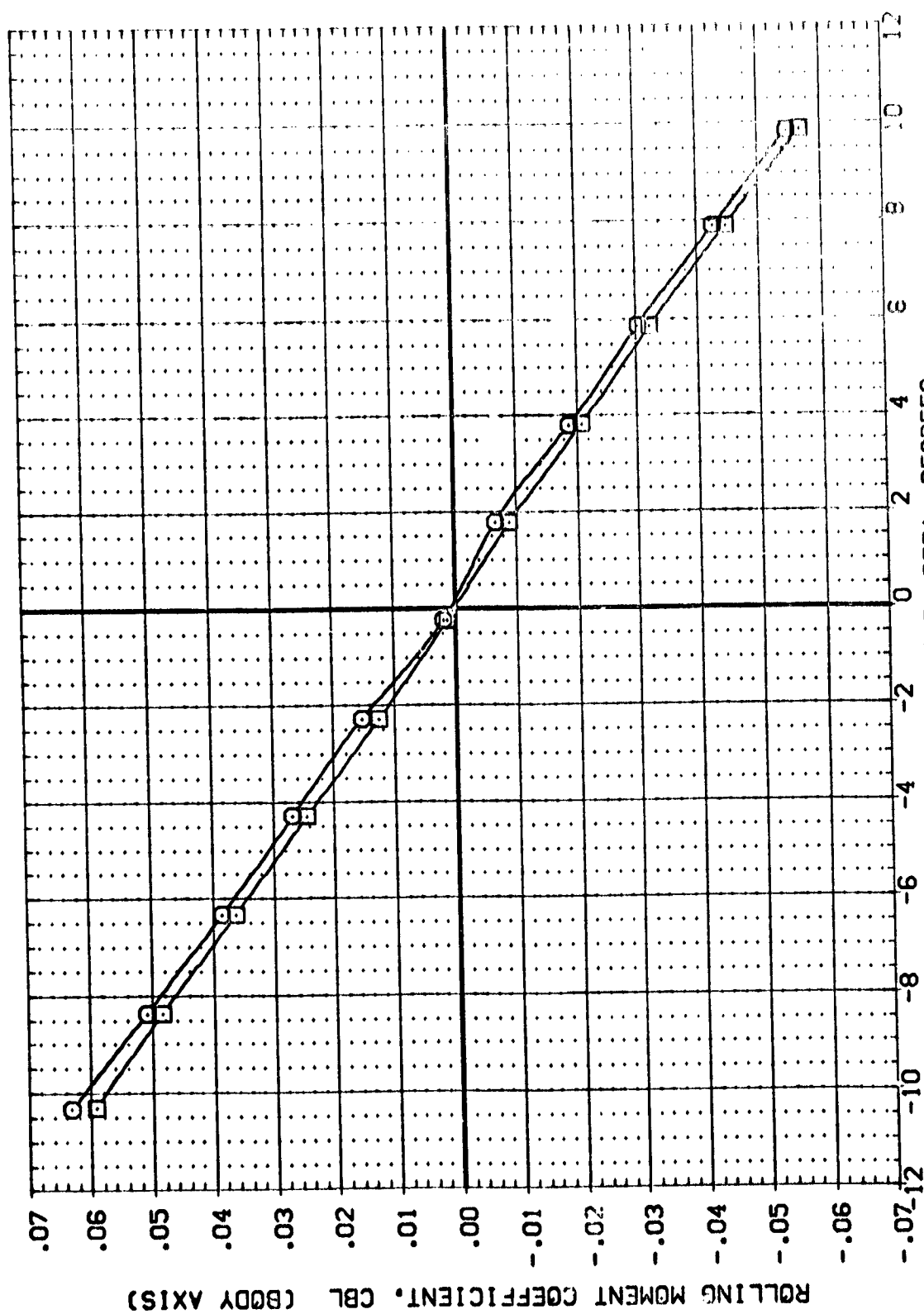


# BASIC DATA- INTEGRATED VEHICLE-AILERON EFFECTIVENESS IN TURN

CA)DELTA= .00



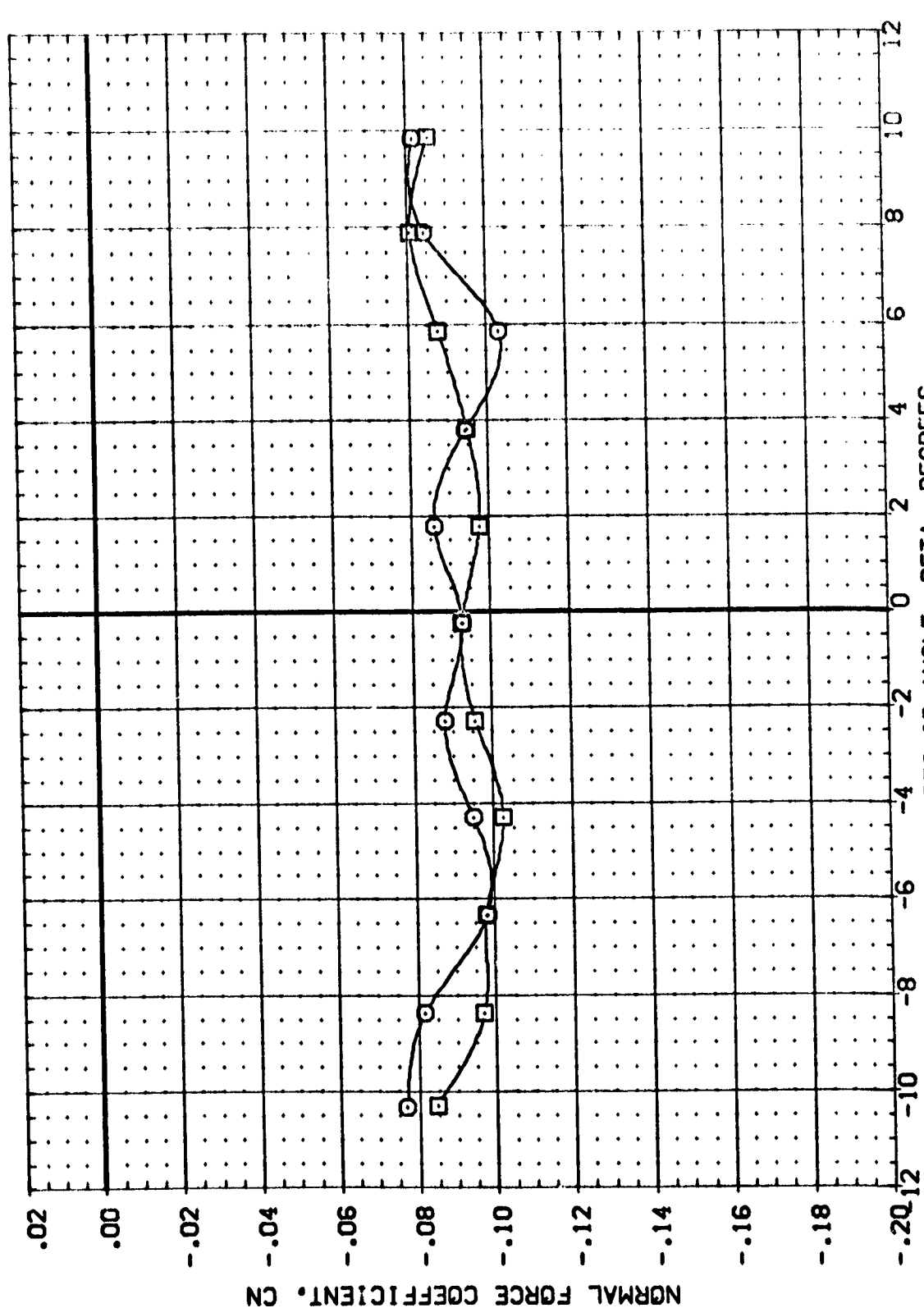
| DATA SET SYMBOL | CONFIGURATION DESCRIPTION             | ALPHA | BETA  | ELEVATION | AZIMUTH | RANGE | SOURCE | SO.FT.   |
|-----------------|---------------------------------------|-------|-------|-----------|---------|-------|--------|----------|
| (ABS07)         | M571(ASA) MATED CONFIGURATION [D1319] | .000  | 4.950 | .000      | 10.000  | LREF  |        | 2650.000 |
| (ABS06)         | M571(ASA) MATED CONFIGURATION [D1319] | .000  | 4.950 | .000      |         | SREF  |        | 328.000  |
|                 |                                       |       |       |           |         | XARP  |        | 1308.000 |
|                 |                                       |       |       |           |         | YARP  |        | 635.000  |
|                 |                                       |       |       |           |         | ZGRP  |        | .000     |
|                 |                                       |       |       |           |         | SCALE |        | .000     |



BASIC DATA- INTEGRATED VEHICLE- AILERON EFFECTIVENESS IN YAW

(CA)DELTA=.00

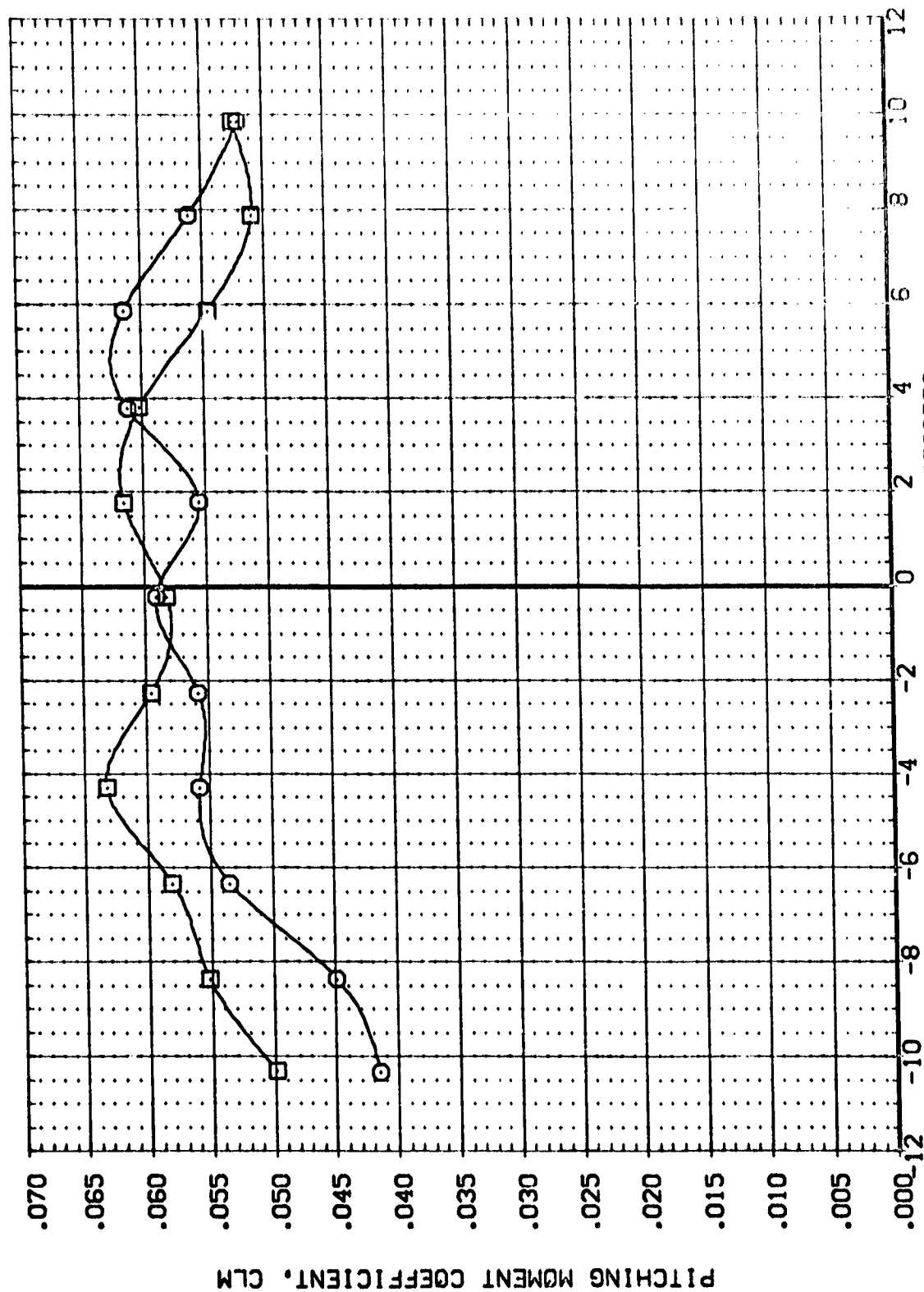
|                 |                                        |       |       |        |         |                       |
|-----------------|----------------------------------------|-------|-------|--------|---------|-----------------------|
| DATA SET SYMBOL | CONFIGURATION DESCRIPTION              | ALPHA | MACH  | ELEVTR | AILERON | REFERENCE INFORMATION |
| (ABF107)        | M571(1A6A) MATED CONFIGURATION (01379) | .000  | 4.560 | .000   | .0.000  | SREF 2690.0000 SQ.FT. |
| (AB5106)        | M571(1A6A) MATED CONFIGURATION (01379) | .000  | 4.560 | .000   | .000    | LREF 1328.3000 IN.    |
|                 |                                        |       |       |        |         | BREF 1328.3000 IN.    |
|                 |                                        |       |       |        |         | YREF 635.0000 IN.     |
|                 |                                        |       |       |        |         | ZREF 1000.0000 IN.    |
|                 |                                        |       |       |        |         | SCALE .0040           |



BASIC DATA- INTEGRATED VEHICLE- AILERON EFFECTIVENESS IN YAW

(A) DELTAX = .00

|                 |                                         |       |       |        |         |                       |
|-----------------|-----------------------------------------|-------|-------|--------|---------|-----------------------|
| DATA SET SYMBOL | CONFIGURATION DESCRIPTION               | ALPHA | MACH  | ELEVTR | AILERON | REFERENCE INFORMATION |
| (A85107)        | M571(11ASA) MATED CONFIGURATION (01379) | .000  | 4.960 | .000   | 10.000  | SREF 2690.0000 SQ.FT. |
| (A85106)        | M571(11ASA) MATED CONFIGURATION (01319) | .000  | 4.960 | .000   | .000    | LREF 1328.3000 IN.    |
|                 |                                         |       |       |        |         | BREF 1328.5000 IN.    |
|                 |                                         |       |       |        |         | XREF 635.0000 IN.     |
|                 |                                         |       |       |        |         | YREF .0000 IN.        |
|                 |                                         |       |       |        |         | ZREF .0000 IN.        |
|                 |                                         |       |       |        |         | SCALE .0040           |

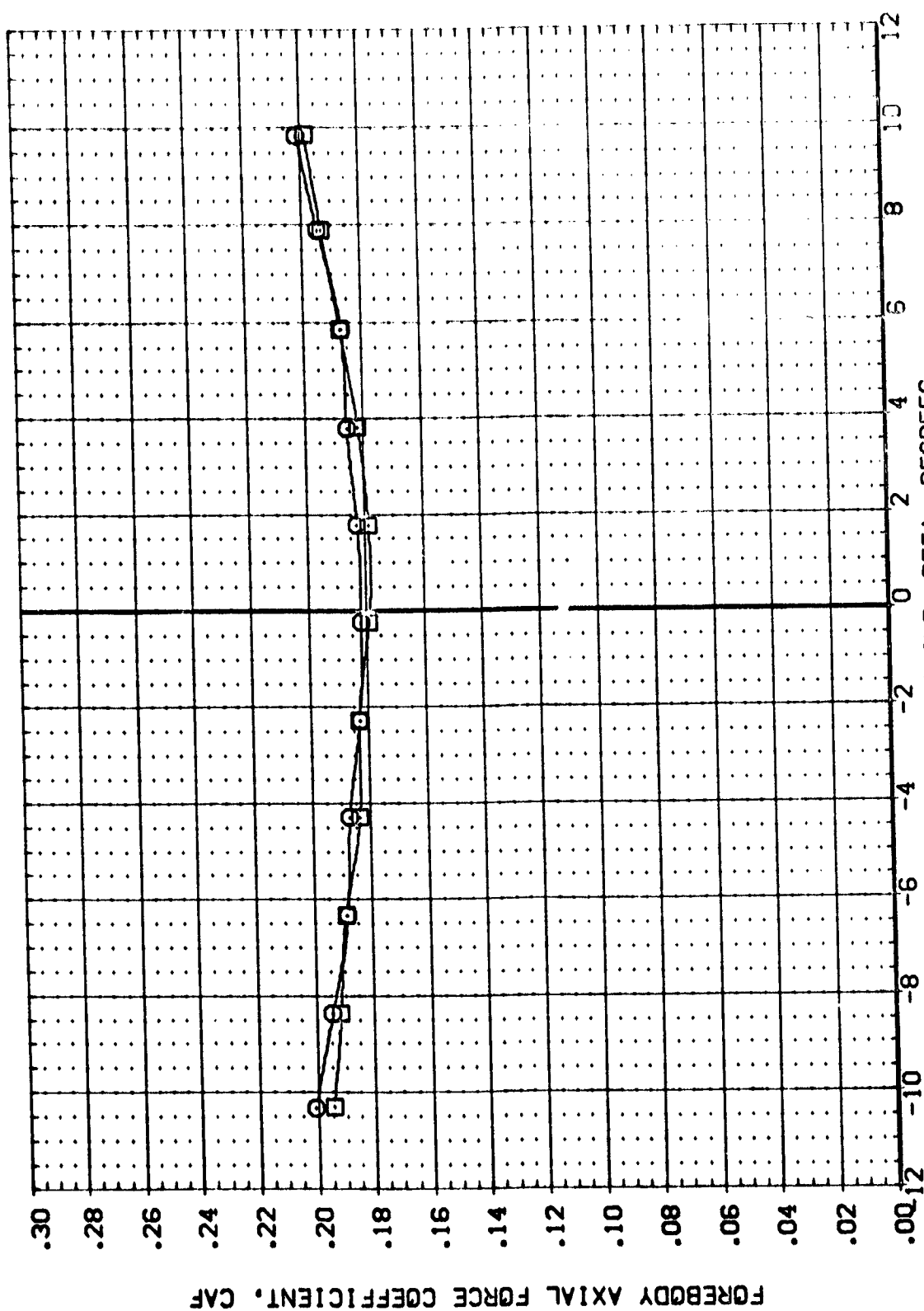


BASIC DATA- INTEGRATED VEHICLE- AILERON EFFECTIVENESS IN YAW

(A)DELTA X= .00



|                 |                                        |       |       |        |        |                       |
|-----------------|----------------------------------------|-------|-------|--------|--------|-----------------------|
| DATA SET SYMBOL | CONFIGURATION DESCRIPTION              | ALPHA | MACH  | ELEVTR | AILRON | REFERENCE INFORMATION |
| (A85107)        | M571(1A6A) MATED CONFIGURATION (01379) | .000  | 4.960 | .000   | 10.000 | SREF 2590.0000 SQ.FT. |
| (A85106)        | M571(1A6A) MATED CONFIGURATION (01379) | .000  | 4.960 | .000   | .000   | LREF 1328.3000 IN.    |
|                 |                                        |       |       |        |        | BREF 1328.3000 IN.    |
|                 |                                        |       |       |        |        | XC-RP 635.0000 IN.    |
|                 |                                        |       |       |        |        | YM-RP .0000 IN.       |
|                 |                                        |       |       |        |        | ZM-RP .0000 IN.       |
|                 |                                        |       |       |        |        | SCALE .0040           |



BASIC DATA- INTEGRATED VEHICLE- AILERON EFFECTIVENESS IN YAW

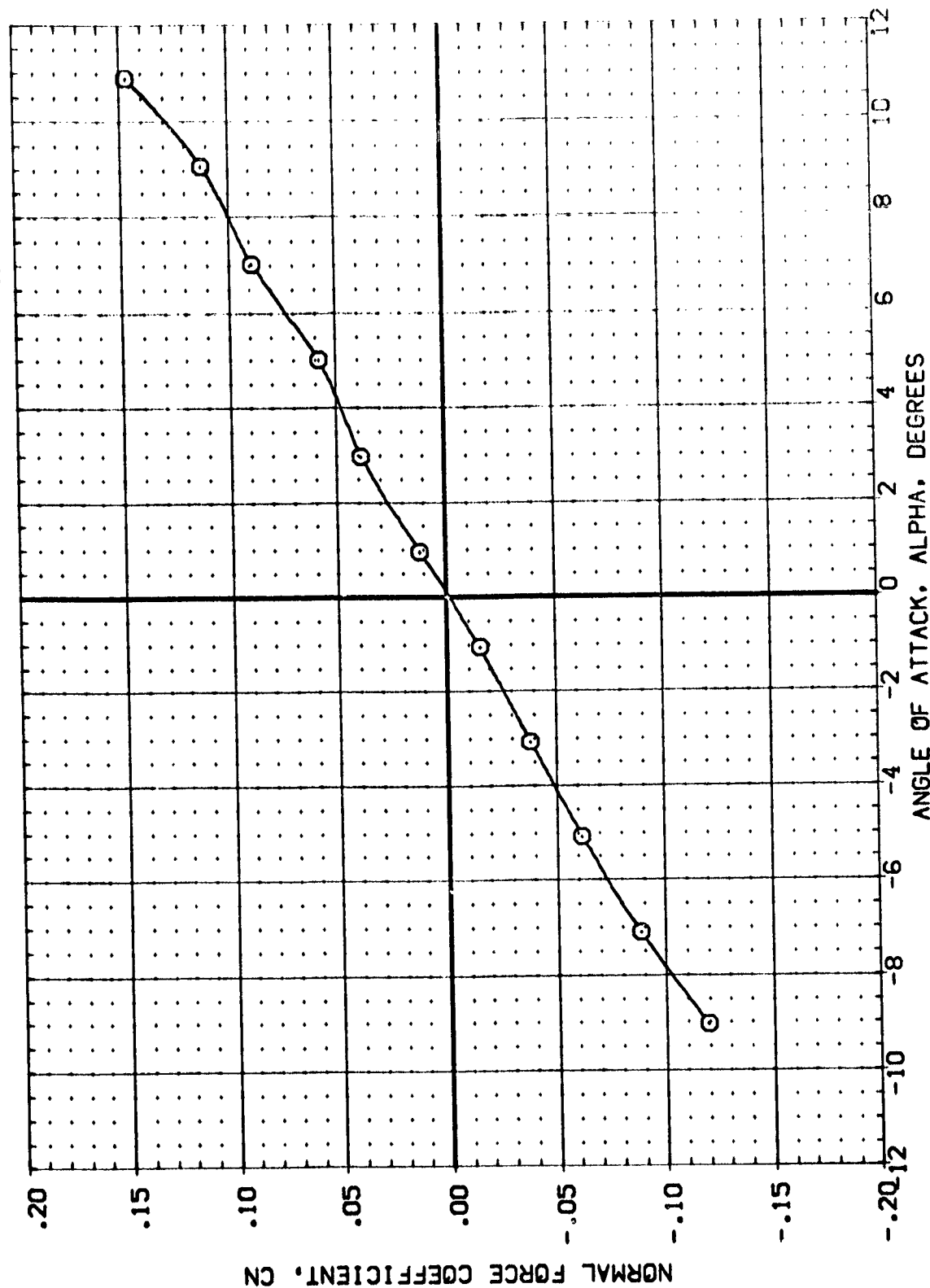
(A)DELTA X= .00

(A85T28)

M571(1A6A) TANK(T9) ALONE

SYMBOL  $\bigcirc$  DELTAX .000 BETA .000 MACH 4.960

REFERENCE INFORMATION  
SREF 2690.0000 SQ.FT.  
LREF 1328.3000 IN.  
BREF 1328.3000 IN.  
XREF 928.0000 IN.  
YREF .0000 IN.  
ZREF .0000 IN.  
SCALE .0040



BASIC DATA- EXTERNAL TANK ALONE

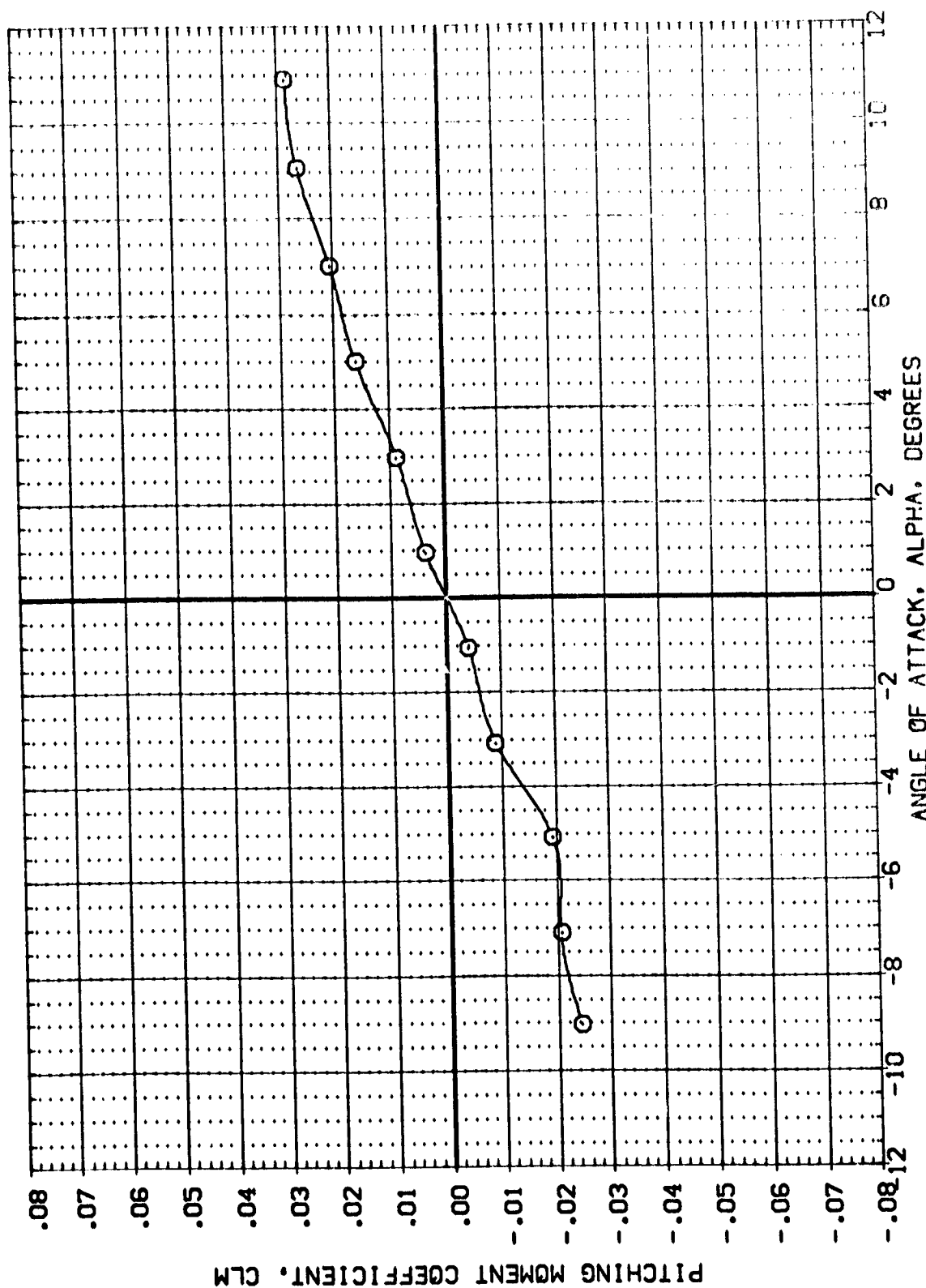


(A85T28)

M571(1A6A) TANK(T9) ALONE

SYMBOL DELTAX BETA PARAMETRIC VALUES MACH 4.960

REFERENCE INFORMATION  
SREF 2690.0000 SQ.FT.  
LREF 1328.3000 IN.  
BREF 1328.3000 IN.  
XREF 929.0000 IN.  
YREF 0.0000 IN.  
ZREF 0.0000 IN.  
SCALE 0.0040



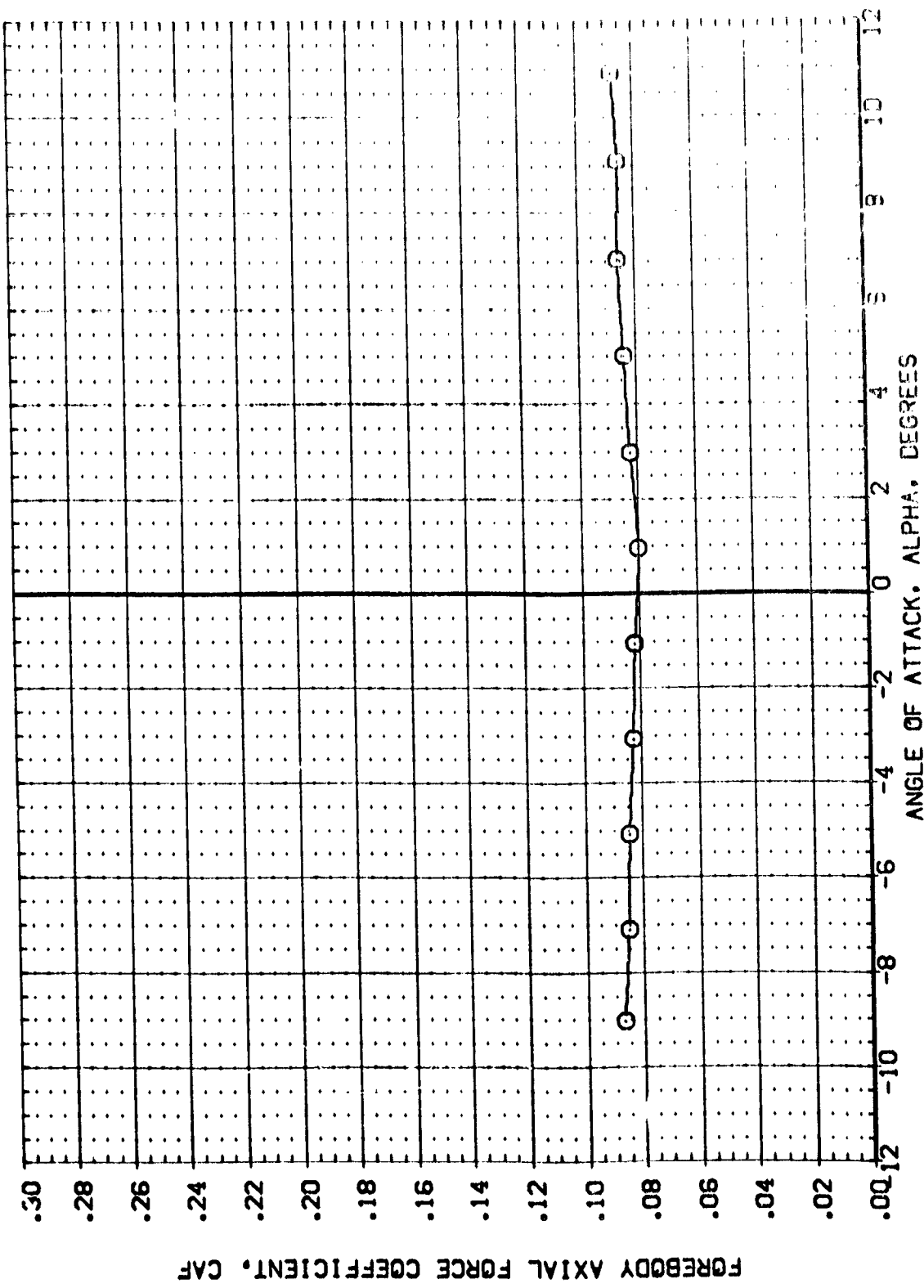
BASIC DATA- EXTERNAL TANK ALONE

(A85T28)

M571(1A6A) TANK(T9) ALONE

SYMBOL DELTAX .000 BETA .000 MACH 4.960

REFERENCE INFORMATION  
SREF 2690.0000 SQ.FT.  
LREF 1328.3000 IN.  
BREF 1328.3000 IN.  
XGRP 529.0000 IN.  
YGRP .0000 IN.  
ZGRP .0000 IN.  
SCALE .0040



BASIC DATA- EXTERNAL TANK ALONE

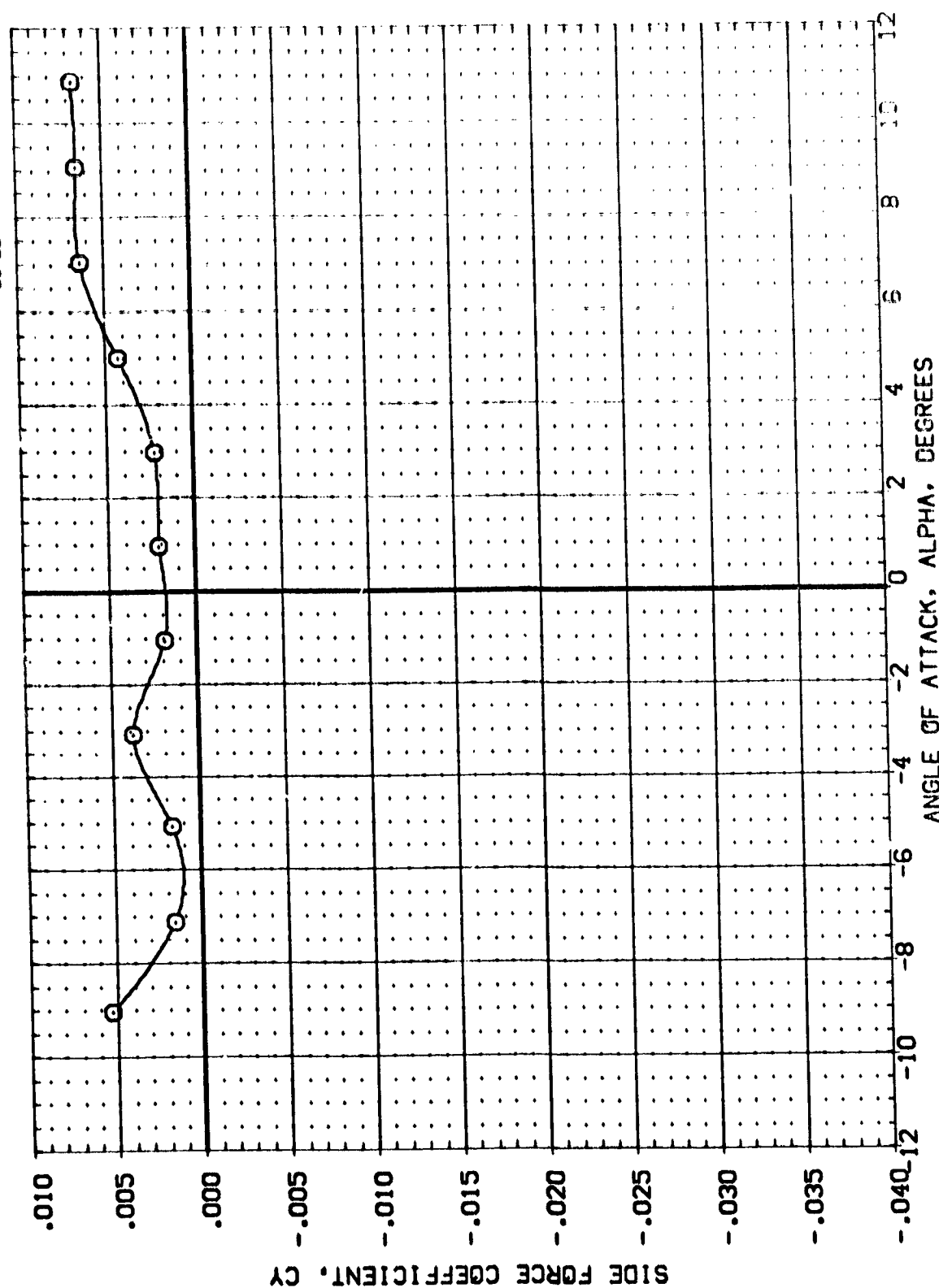


(A85T28)

M571(IAG) TANK(T9) ALONE

SYMB. DELTAX BETA PARAMETRIC VALUES MACH 4.950

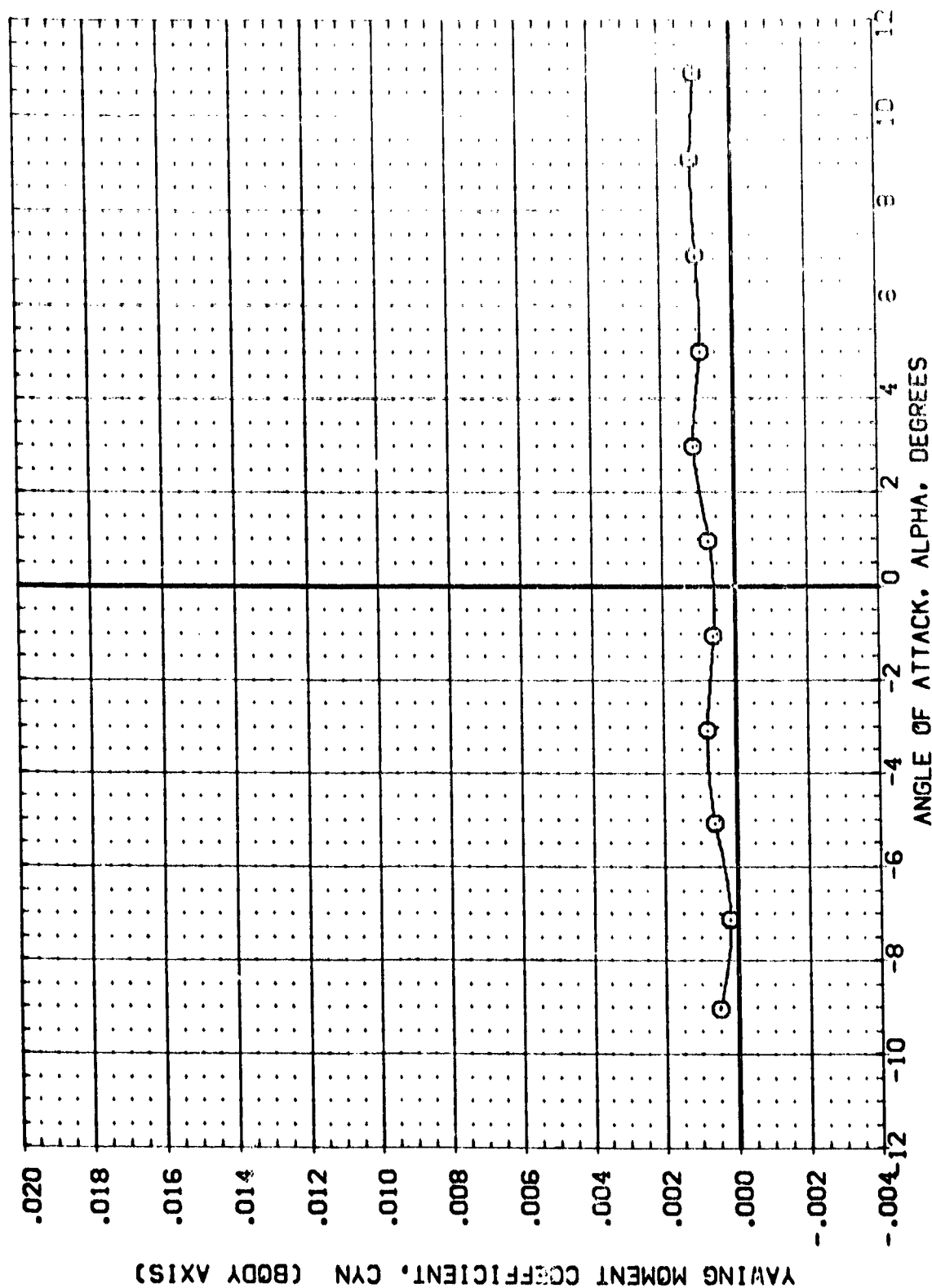
REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 1328.3000 IN.  
 BREF 1328.3000 IN.  
 XREF 929.0000 IN.  
 YREF .0000 IN.  
 ZREF .0000 IN.  
 SCALE .0040



BASIC DATA- EXTERNAL TANK ALONE

(A85128)

| REFERENCE INFORMATION |           | 50. FT. |
|-----------------------|-----------|---------|
| SPT                   | 2690.0000 | IN.     |
| 30'                   | 1328.3000 | IN.     |
| 35'                   | 1328.3000 | IN.     |
| XPS                   | 929.0000  | IN.     |
| WSP                   | .0000     | IN.     |
| WSP                   | .0000     | IN.     |
| SCALE                 | .0000     |         |



# BASIC DATA- EXTERNAL TANK ALONE

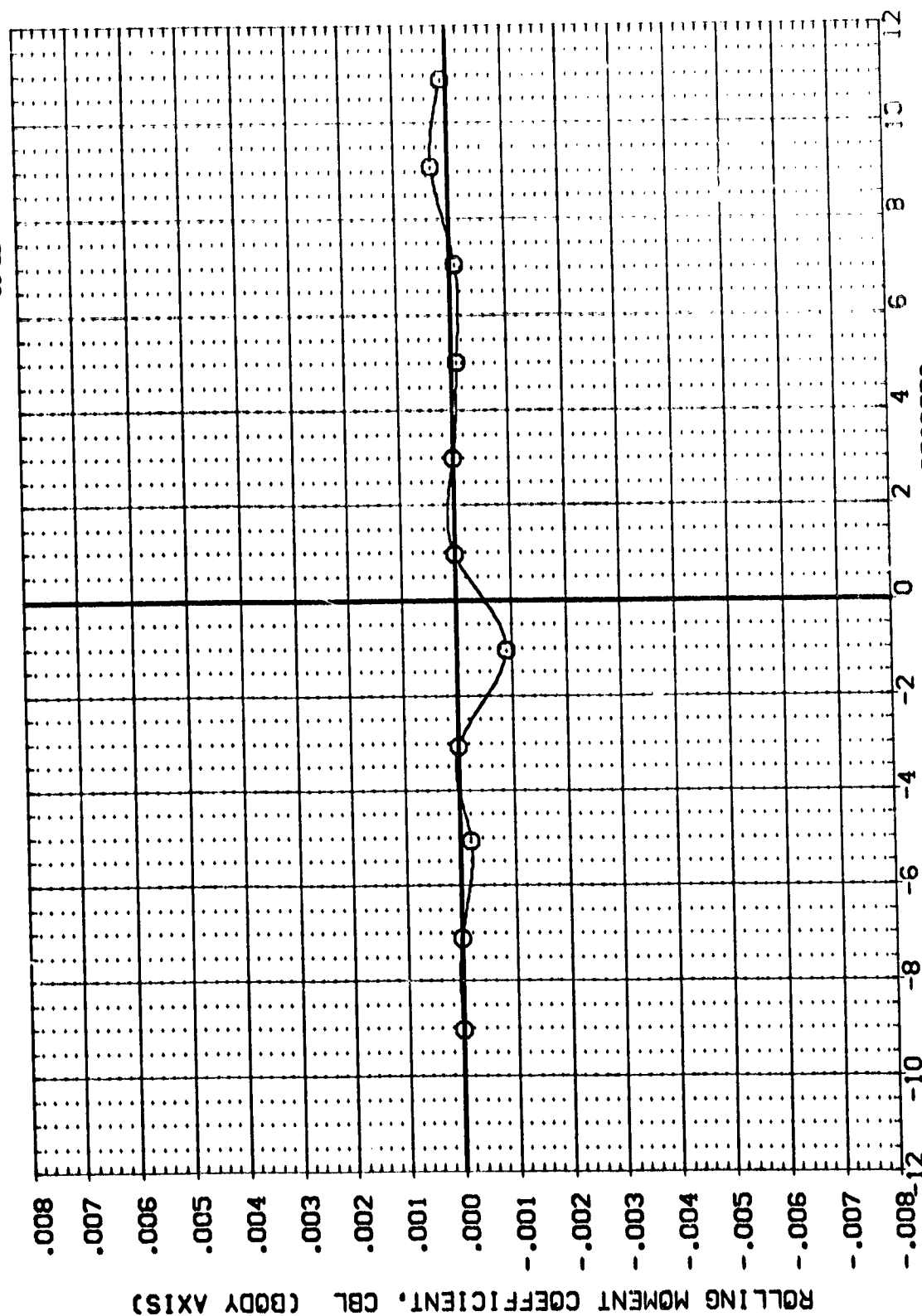


(A85T28)

M571(1A6A) TANK(T9) ALONE

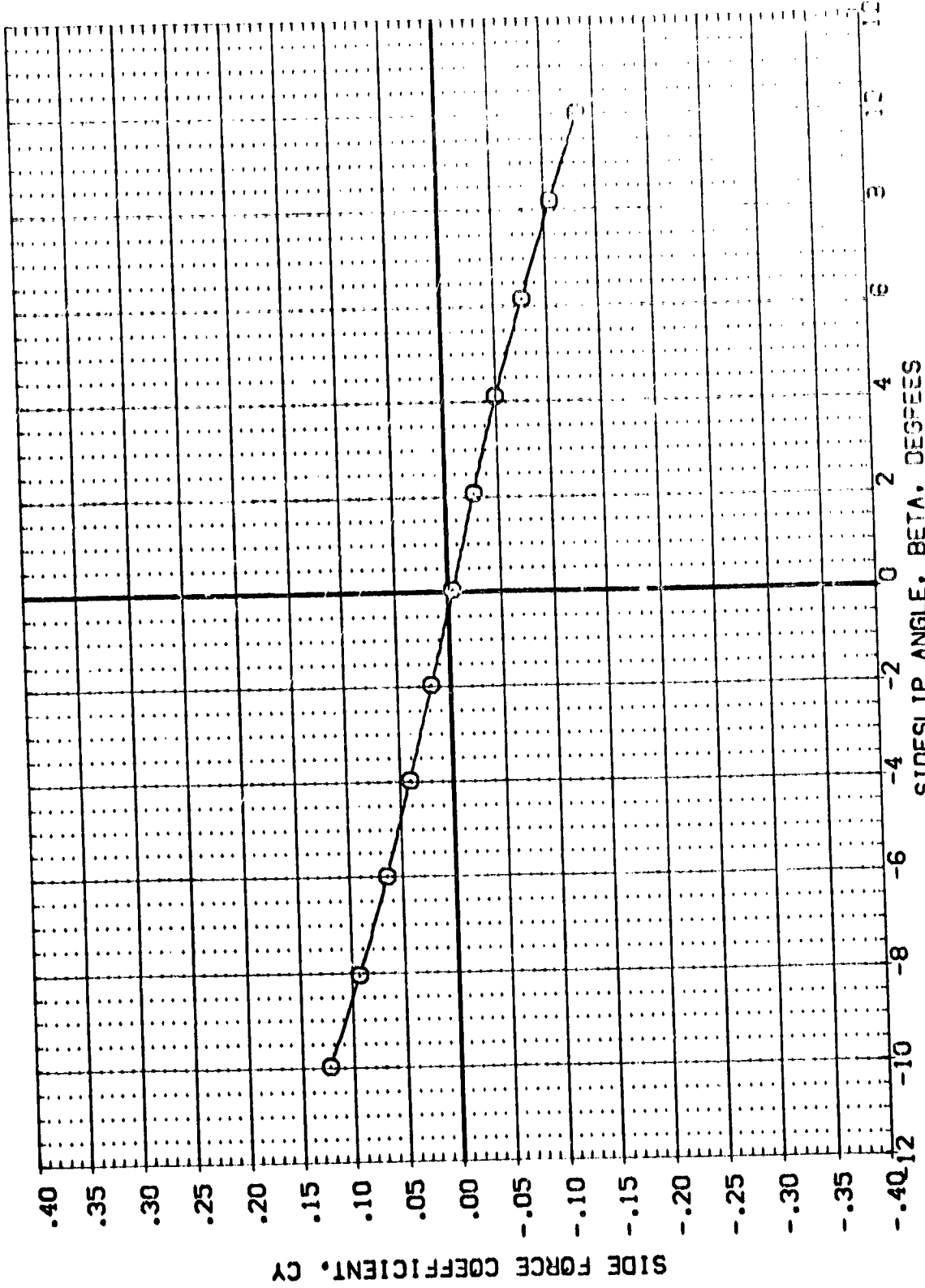
SYMBOL DELTAX BETA PARAMETRIC VALUES MACH 4.960

REFERENCE INFORMATION  
 SREF 2690.0000 SD.FT.  
 LREF 1328.3000 IN  
 BREF 1328.3000 IN  
 XREF 929.0000 IN  
 YREF .0000 IN  
 ZREF .0000 IN  
 SCALE .0010



BASIC DATA- EXTERNAL TANK ALONE

| SYMBOL | DELTA X<br>.000 | ALPHA | PARAMETRIC VALUES<br>.000 MACH | 4.960 |
|--------|-----------------|-------|--------------------------------|-------|
| 0      |                 |       |                                |       |



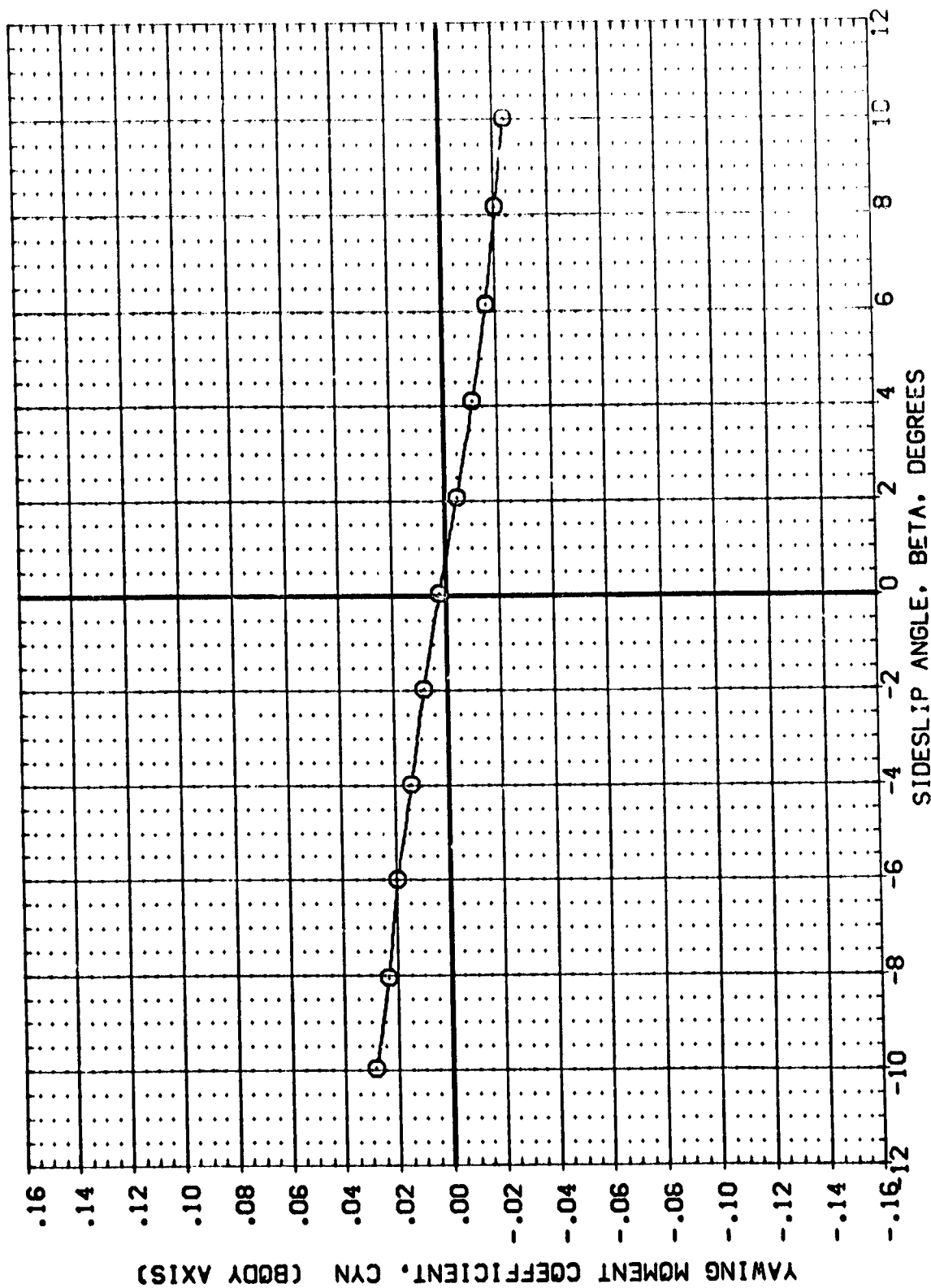
**BASIC DATA- EXTERNAL TANK ALONE**

(A85T29)

M571(1A6A) TANK(T9) ALONE

SYMBOL DELTAX .000 ALPHA .000 MACH 4.960

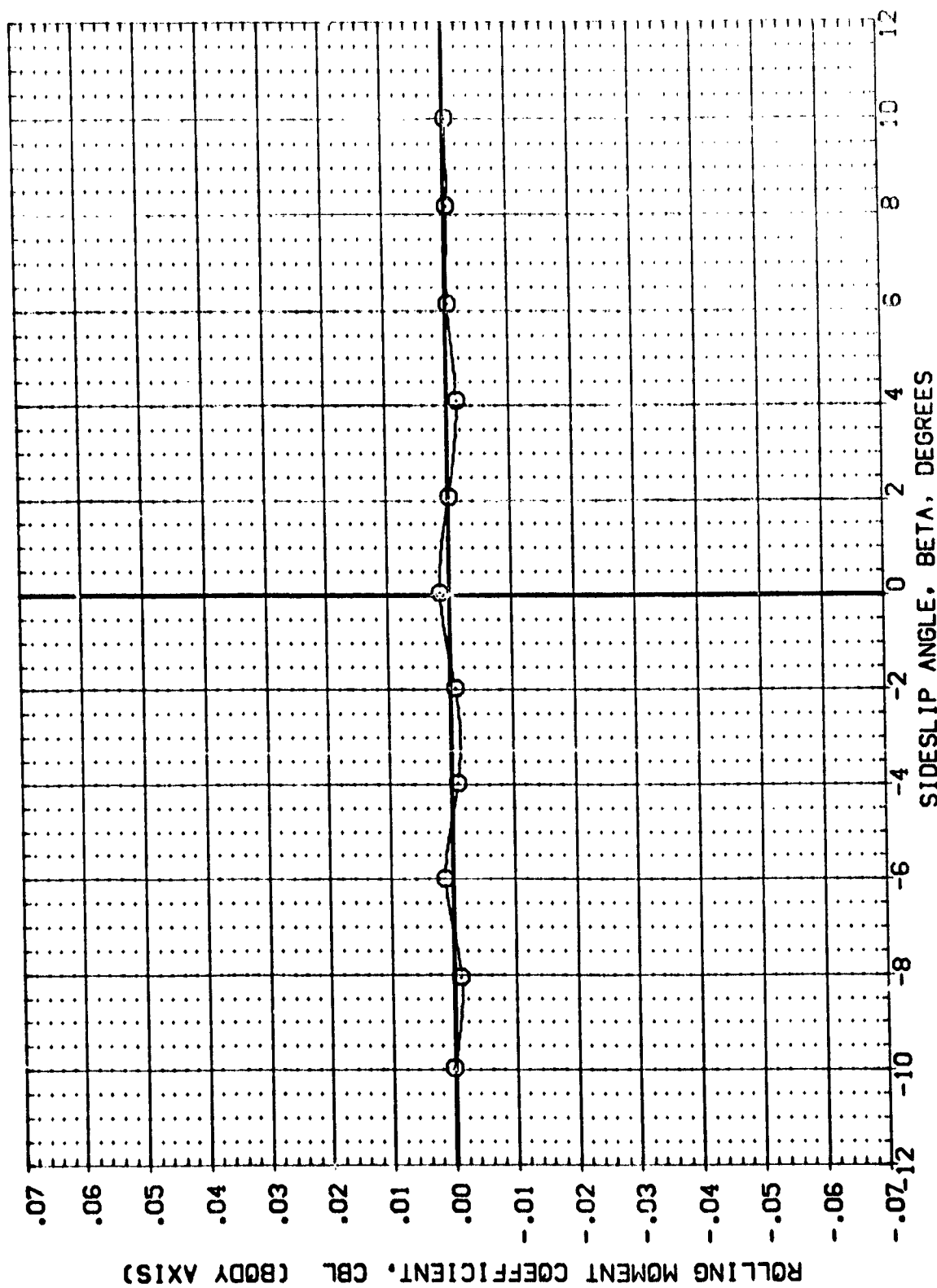
REFERENCE INFORMATION  
SREF 2690.0000 SQ.FT.  
LREF 1328.3000 IN.  
BREF 1328.3000 IN.  
XREF 928.0000 IN.  
YREF .0000 IN.  
ZREF .0000 IN.  
SCALE .0010



BASIC DATA- EXTERNAL TANK ALONE

| REF       | SCALE |
|-----------|-------|
| 1328.3000 | .0040 |
| 1328.3000 | .0000 |
| 929.0000  | .0000 |
| 929.0000  | .0000 |
| 929.0000  | .0040 |

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Y447  
men.  
H7H7  
1900



**BASIC DATA- EXTERNAL TANK ALONE**

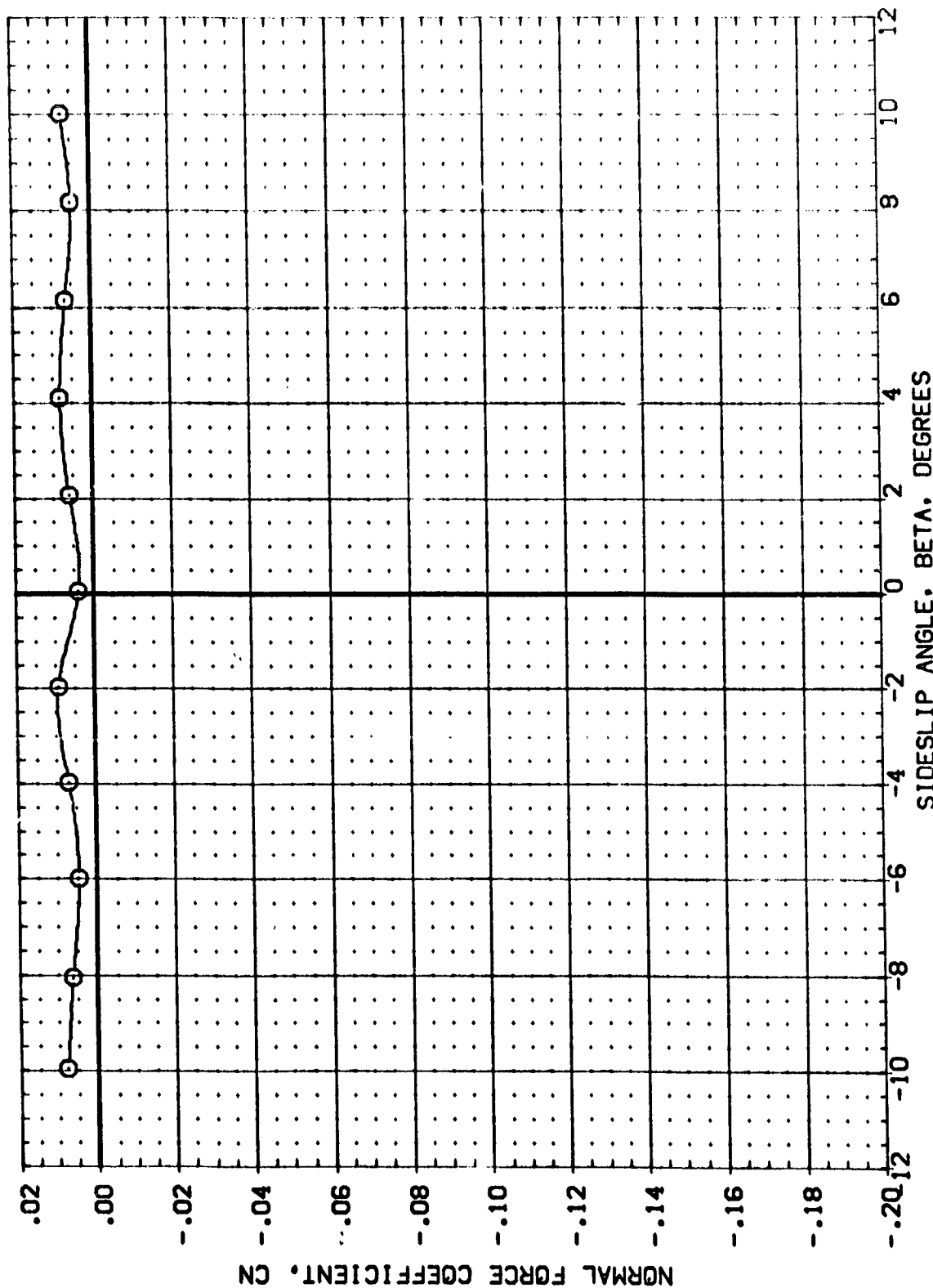
42  
61  
62  
63

M571(1A6A) TANK(T9) ALONE

(A85T29)

SYMBOL DELTAX ALPHA PARAMETRIC VALUES  
O .000 .000 MACH 4.960

REFERENCE INFORMATION  
SREF 2690.0000 SQ.FT.  
LREF 1328.3000 IN.  
BREF 1328.3000 IN.  
XPRP 929.0000 IN.  
YPRP .0000 IN.  
ZPRP .0000 IN.  
SCALE .0040



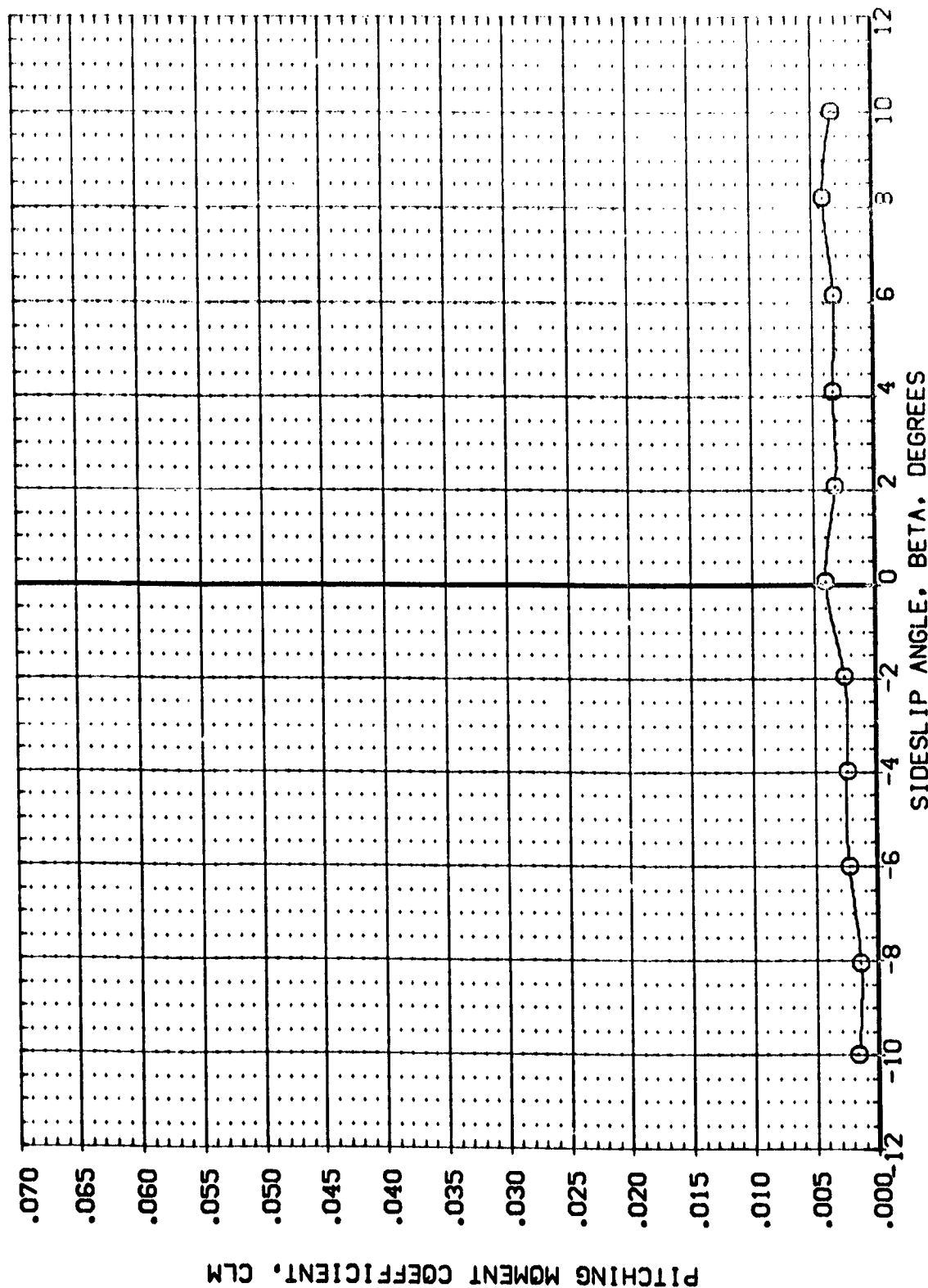
BASIC DATA- EXTERNAL TANK ALONE

M571(1A6A) TANK(19) ALONE

(A85T29)

SYMBOL DELTA X .000 ALPHA .000 MACH 4.960

REFERENCE INFORMATION  
SREF 2690.0000 SQ.FT.  
LREF 1328.3000 IN.  
BREF 1328.3000 IN.  
XMRP 929.0000 IN.  
YMRP .0000 IN.  
ZMRP .0000 IN.  
SCALE .0010



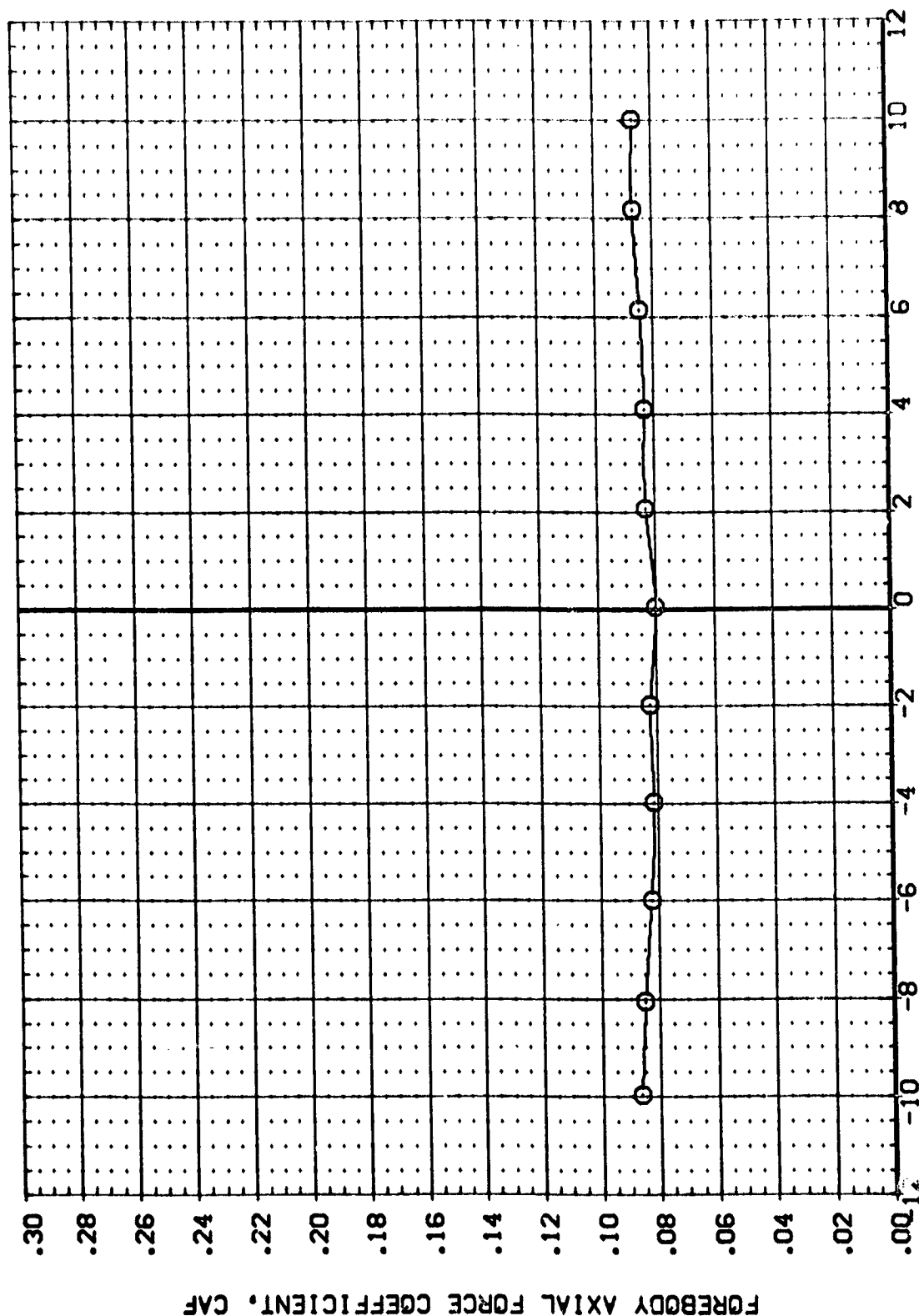
BASIC DATA- EXTERNAL TANK ALONE

(A85T29)

M571(1A6A) TANK(T9) ALONE

SYMBOL 0 DELTAX .000 ALPHA .000 MACH 4.950

REFERENCE INFORMATION  
SREF 2690.0000 SQ.FT.  
LREF 1328.3000 IN.  
BREF 1328.3000 IN.  
XMRP 929.0000 IN.  
YMRP .0000 IN.  
ZMRP .0000 IN.  
SCALE .0040



BASIC DATA- EXTERNAL TANK ALONE

APPENDIX  
TABULATED SOURCE DATA

Plotted data available on request  
from Data Management Services.

NSFC (1A6A) QND (131) WITH TANK (79) SEPARATING (R03000) (04 OCT 73)

## REFERENCE DATA

STEP = 2690.0000 SQ.FT. YMRP = 267.7100 IN.  
 STEP = 1322.0000 IN. YMRP = 267.7100 IN.  
 STEP = 1322.0000 IN. ZMRP = 267.7100 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 WACH = 4.000  
 ELEVTE = .000 ALERDA = .000  
 FODDER = .000 FODDER = 40.000  
 DELTAA = -5.000 DELTAA = .000  
 DELTAY = .000 DELTAY = .000

RUN NO. 1019/ 0 RN/L = 5.01 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM      | CY       | CYN    | CBL    | CAF      | CABO   | CABT   | CABS   |
|----------|--------|---------|----------|----------|--------|--------|----------|--------|--------|--------|
| .000     | -5.000 | -1.1040 | -1.0090  | .00900   | .00070 | .00060 | .10630   | .00000 | .00000 | .00000 |
| .000     | -2.000 | -1.0120 | -1.0100  | .01140   | .00080 | .00000 | .09570   | .00000 | .00000 | .00000 |
| .000     | .000   | -1.0540 | -1.0170  | .00830   | .00060 | .00000 | .08690   | .00000 | .00000 | .00000 |
| .000     | 2.000  | -1.0260 | -1.0120  | .00810   | .00020 | .00060 | .07910   | .00000 | .00000 | .00000 |
| .000     | 5.000  | -1.0180 | -1.0140  | .00580   | .00010 | .00000 | .06960   | .00000 | .00000 | .00000 |
| GRADIENT |        | .01297  | -1.00050 | -1.00030 | .00005 | .00000 | -1.00374 | .00000 | .00000 | .00000 |

RUN NO. 1020/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM      | CY       | CYN      | CBL    | CAF      | CABO   | CABT   | CABS   |
|----------|--------|---------|----------|----------|----------|--------|----------|--------|--------|--------|
| 324.000  | -5.000 | -1.0820 | -1.0020  | .00790   | -1.00060 | .00000 | .11530   | .00000 | .00000 | .00000 |
| 324.000  | -2.000 | -1.0310 | -1.0010  | .00730   | .00000   | .00000 | .08750   | .00000 | .00000 | .00000 |
| 324.000  | .000   | -1.0320 | -1.0070  | .00760   | .00020   | .00000 | .08290   | .00000 | .00000 | .00000 |
| 324.000  | 2.000  | -1.0180 | -1.0010  | .00730   | .00000   | .00000 | .08110   | .00000 | .00000 | .00000 |
| 324.000  | 5.000  | -1.0040 | -1.0040  | .00570   | .00060   | .00000 | .08150   | .00000 | .00000 | .00000 |
| GRADIENT |        | .01154  | -1.00061 | -1.00019 | .00012   | .00002 | -1.00236 | .00000 | .00000 | .00000 |

RUN NO. 1021/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM      | CY       | CYN      | CBL    | CAF      | CABO   | CABT   | CABS   |
|----------|--------|---------|----------|----------|----------|--------|----------|--------|--------|--------|
| 648.000  | -5.000 | -1.0540 | -1.0080  | .00350   | -1.00080 | .00000 | .10120   | .00000 | .00000 | .00000 |
| 648.000  | -2.000 | -1.0080 | -1.0130  | .00670   | -1.00080 | .00000 | .09400   | .00000 | .00000 | .00000 |
| 648.000  | .000   | -1.0250 | -1.0080  | .00500   | -1.00070 | .00000 | .08920   | .00000 | .00000 | .00000 |
| 648.000  | 2.000  | -1.0090 | -1.0030  | .00350   | .00000   | .00000 | .08950   | .00000 | .00000 | .00000 |
| 648.000  | 5.000  | -1.0040 | -1.0040  | .00360   | .00010   | .00000 | .08770   | .00000 | .00000 | .00000 |
| GRADIENT |        | .01429  | -1.00003 | -1.00010 | .00011   | .00003 | -1.00247 | .00000 | .00000 | .00000 |

RUN NO. 1022/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM      | CY       | CYN    | CBL      | CAF      | CABO   | CABT   | CABS   |
|----------|--------|---------|----------|----------|--------|----------|----------|--------|--------|--------|
| 972.000  | -5.000 | -1.0340 | -1.0080  | .00720   | .00000 | -1.00000 | .10130   | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | -1.0440 | -1.0110  | .00730   | .00000 | -1.00000 | .09330   | .00000 | .00000 | .00000 |
| 972.000  | .000   | -1.0310 | -1.00240 | .00740   | .00000 | .00000   | .09130   | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | -1.0260 | -1.00060 | .00720   | .00000 | .00000   | .08980   | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | -1.0110 | -1.00110 | .00710   | .00000 | .00000   | .08720   | .00000 | .00000 | .00000 |
| GRADIENT |        | .02346  | -1.00015 | -1.00006 | .00006 | .00000   | -1.00134 | .00000 | .00000 | .00000 |

(585012)

14 OCT 73

MS71(1A6A) CDS (003) WITH TANK (19) SEPARATING

## REFERENCE DATA

STEP = 2890.0000 SQ.FT. YMRP = 867.7000 IN.  
 LSEP = 1328.3000 IN. YMRP = .0000 IN.  
 BSEP = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

DETA = .000 WICH = 4.950  
 ELEVR = .000 ADLER = .000  
 RUDDER = .000 RUDDER = 4.000  
 DELTAA = .000 DELTAD = .000  
 DELTAY = .000 DELTAE = .000

## PARAMETRIC DATA

RUN NO. 1035/ 0 RN/L = 4.97 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN    | CEL     | CAF     | CABO   | CABT   | CABE   |
|----------|--------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000     | -5.000 | -.00560 | -.00650 | .00740  | .00070 | -.00040 | .00430  | .00000 | .00000 | .00000 |
| .000     | -2.000 | -.00640 | -.00790 | .00550  | .00040 | -.00020 | .00240  | .00000 | .00000 | .00000 |
| .000     | .000   | -.00480 | -.01000 | .00580  | .00090 | .00030  | .00060  | .00000 | .00000 | .00000 |
| .000     | 2.000  | -.00690 | -.00590 | .00660  | .00100 | .00030  | .00250  | .00000 | .00000 | .00000 |
| .000     | 5.000  | .00550  | -.01050 | .00410  | .00070 | .00040  | .00490  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01409  | -.00038 | -.00025 | .00002 | .00009  | -.00295 | .00000 | .00000 | .00000 |

RUN NO. 1040/ 0 RN/L = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN     | CEL    | CAF     | CABO   | CABT   | CABE   |
|----------|--------|---------|---------|---------|---------|--------|---------|--------|--------|--------|
| 324.000  | -5.000 | -.00560 | .00690  | .00750  | -.00040 | .00000 | .00790  | .00000 | .00000 | .00000 |
| 324.000  | -2.000 | -.00390 | .00620  | .00530  | .00020  | .00030 | .00120  | .00000 | .00000 | .00000 |
| 324.000  | .000   | -.00220 | .00430  | .00450  | .00020  | .00030 | .00590  | .00000 | .00000 | .00000 |
| 324.000  | 2.000  | .00260  | .00160  | .00310  | .00040  | .00040 | .00030  | .00000 | .00000 | .00000 |
| 324.000  | 5.000  | .00450  | -.00010 | .00330  | .00070  | .00070 | .00230  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01094  | -.00078 | -.00044 | .00010  | .00006 | -.00258 | .00000 | .00000 | .00000 |

RUN NO. 1041/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN     | CEL    | CAF     | CABO   | CABT   | CABE   |
|----------|--------|---------|---------|---------|---------|--------|---------|--------|--------|--------|
| 648.000  | -5.000 | -.00240 | .00170  | .00590  | .00040  | .00010 | .00450  | .00000 | .00000 | .00000 |
| 648.000  | -2.000 | .00210  | .00170  | .00560  | -.00050 | .00020 | .00560  | .00000 | .00000 | .00000 |
| 648.000  | .000   | .00340  | .00160  | .00590  | -.00010 | .00050 | .00930  | .00000 | .00000 | .00000 |
| 648.000  | 2.000  | .00780  | .00490  | .00270  | .00020  | .00050 | .00230  | .00000 | .00000 | .00000 |
| 648.000  | 5.000  | .02440  | .00130  | .00190  | .00040  | .00010 | .00760  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01437  | -.00041 | -.00047 | .00002  | .00010 | -.00263 | .00000 | .00000 | .00000 |

RUN NO. 1046/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN     | CLM     | CY      | CYN     | CEL     | CAF     | CABO   | CABT   | CABE   |
|----------|--------|--------|---------|---------|---------|---------|---------|--------|--------|--------|
| 972.000  | -5.000 | .00090 | .00000  | .00640  | -.00010 | -.00060 | .00110  | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | .00020 | -.00070 | -.00010 | .00040  | -.00070 | .00220  | .00000 | .00000 | .00000 |
| 972.000  | .000   | .00070 | -.00030 | -.00010 | .00070  | .00030  | .00110  | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | .00000 | -.00010 | -.00030 | .00010  | .00030  | .00160  | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | .00000 | -.00010 | -.00030 | .00010  | .00030  | .00160  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02249 | -.00038 | -.00013 | .00012  | .00023  | -.00117 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, MSFC 571, (IAGB)

PAGE 3

MS71(IAGB) ORB (0131) WITH TANK (79) SEPARATING

(000000) (24 OCT 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 867.7000 IN.  
 LREF = 1329.3000 IN. YMRP = .0000 IN.  
 BREF = 1329.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

PARAMETRIC DATA

BETA = .000 MACH = 4.250  
 ELEVEN = .000 AIRFON = .000  
 RUDDER = .000 RUDDER = 40.000  
 DELTAA = -5.000 DELTAB = .000  
 DELTAY = .000 DELTAZ = 162.000

RUN NO. 1026/ 0 RN/L = 5.01 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY      | CYN     | CBL    | CAF     | CASO   | CABT   | CABS   |
|-------|----------|---------|---------|---------|---------|--------|---------|--------|--------|--------|
| .000  | -5.000   | -.07270 | -.00410 | .00520  | -.00020 | .00000 | .00270  | .00000 | .00000 | .00000 |
| .000  | -2.000   | -.01950 | -.00030 | .00450  | .00040  | .00060 | .00280  | .00000 | .00000 | .00000 |
| .000  | .000     | -.00020 | .00100  | .00300  | .00040  | .00040 | .00000  | .00000 | .00000 | .00000 |
| .000  | 2.000    | .02260  | .00250  | .00340  | .00030  | .00000 | .00430  | .00000 | .00000 | .00000 |
| .000  | 5.000    | .05980  | .00420  | .00290  | .00040  | .00120 | .00760  | .00000 | .00000 | .00000 |
|       | GRADIENT | .01287  | .00381  | -.00024 | .00005  | .00011 | -.00244 | .00000 | .00000 | .00000 |

RUN NO. 1025/ 0 RN/L = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN     | CBL    | CAF     | CASO   | CABT   | CABS   |
|---------|----------|---------|---------|---------|---------|--------|---------|--------|--------|--------|
| 324.000 | -5.000   | -.05710 | -.00710 | .00560  | .00050  | .00020 | .00700  | .00000 | .00000 | .00000 |
| 324.000 | -2.000   | -.00610 | -.00590 | .00380  | .00060  | .00050 | .00420  | .00000 | .00000 | .00000 |
| 324.000 | .000     | .02940  | -.00190 | .00390  | .00030  | .00040 | .00010  | .00000 | .00000 | .00000 |
| 324.000 | 2.000    | .05610  | .00070  | .00230  | .00040  | .00110 | .00630  | .00000 | .00000 | .00000 |
| 324.000 | 5.000    | .09910  | .00420  | .00170  | .00000  | .00150 | .00070  | .00000 | .00000 | .00000 |
|         | GRADIENT | .01527  | .00120  | -.00039 | -.00003 | .00013 | -.00254 | .00000 | .00000 | .00000 |

RUN NO. 1024/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CASO   | CABT   | CABS   |
|---------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 648.000 | -5.000   | -.06520 | -.01290 | .00780  | .00060 | -.00130 | .00780  | .00000 | .00000 | .00000 |
| 648.000 | -2.000   | .00740  | -.01420 | .00580  | .00060 | -.00100 | .00710  | .00000 | .00000 | .00000 |
| 648.000 | .000     | .06410  | -.01430 | .00320  | .00060 | -.00140 | .00730  | .00000 | .00000 | .00000 |
| 648.000 | 2.000    | .11360  | -.01440 | .00090  | .00110 | -.00040 | .00830  | .00000 | .00000 | .00000 |
| 648.000 | 5.000    | .17790  | -.01210 | -.00190 | .00070 | .00120  | .00830  | .00000 | .00000 | .00000 |
|         | GRADIENT | .02462  | .00006  | -.00101 | .00003 | .00024  | -.00147 | .00000 | .00000 | .00000 |

RUN NO. 1023/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CASO   | CABT   | CABS   |
|---------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 972.000 | -5.000   | -.06920 | -.01630 | .00730  | .00030 | -.00050 | .00850  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.02210 | -.01700 | .00570  | .00030 | -.00020 | .00850  | .00000 | .00000 | .00000 |
| 972.000 | .000     | .01890  | -.01680 | .00080  | .00070 | -.00050 | .00730  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | .05900  | -.01800 | .00190  | .00080 | -.00080 | .00760  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .14360  | -.01950 | .00020  | .00110 | -.00080 | .00750  | .00000 | .00000 | .00000 |
|         | GRADIENT | .02114  | -.00026 | -.00074 | .00008 | -.00005 | -.00222 | .00000 | .00000 | .00000 |

MS71 (IAGA) CRB (013) WITH TANK (79) SEPARATING

(R85004) 24 OCT 73

## REFERENCE DATA

STEP = 2697.0000 SQ.FT. XMRP = 867.7000 IN.  
 -REF = 1326.2000 IN. YMRP = .0000 IN.  
 REF = 1326.2000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 MICR = 4.957  
 ELEVR = .000 ALTEN = .000  
 RUDDER = .000 EDEL = 49.000  
 DELTAA = .000 DELTAB = .000  
 DELTAY = .000 DELTAC = 162.000

RUN NO. 1036/ 0 RN/L = 4.97 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CASO   | CABT   | CABS   |
|-------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000  | -5.000   | -.06660 | -.00270 | .00640  | .00020 | -.00040 | .00070  | .00000 | .00000 | .00000 |
| .000  | -2.000   | -.03440 | .00060  | .00630  | .00040 | .00000  | .00000  | .00000 | .00000 | .00000 |
| .000  | .000     | -.02130 | -.00100 | .00350  | .00030 | .00000  | .00070  | .00000 | .00000 | .00000 |
| .000  | 2.000    | .00680  | .00000  | .00480  | .00070 | .00000  | .00000  | .00000 | .00000 | .00000 |
| .000  | 5.000    | .04770  | -.00260 | .00340  | .00080 | .00000  | .00000  | .00000 | .00000 | .00000 |
|       | GRADIENT | .01127  | -.00001 | -.00031 | .00006 | .00003  | -.00170 | .00000 | .00000 | .00000 |

RUN NO. 1039/ 0 RN/L = 4.96 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CASO   | CABT   | CABS   |
|---------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 324.000 | -5.000   | -.04630 | -.00460 | .00590  | .00020 | -.00030 | .00420  | .00000 | .00000 | .00000 |
| 324.000 | -2.000   | .00130  | -.00080 | .00340  | .00040 | .00020  | .00370  | .00000 | .00000 | .00000 |
| 324.000 | .000     | .02940  | .00190  | .00240  | .00040 | .00030  | .00290  | .00000 | .00000 | .00000 |
| 324.000 | 2.000    | .05350  | .00300  | .00160  | .00050 | .00050  | .00240  | .00000 | .00000 | .00000 |
| 324.000 | 5.000    | .09580  | .00540  | .00160  | .00040 | .00070  | .00940  | .00000 | .00000 | .00000 |
|         | GRADIENT | .01715  | .00099  | -.00043 | .00002 | .00010  | -.00244 | .00000 | .00000 | .00000 |

RUN NO. 1042/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CASO   | CABT   | CABS   |
|---------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 648.000 | -5.000   | -.02640 | -.01220 | .00600  | .00050 | -.00030 | .00220  | .00000 | .00000 | .00000 |
| 648.000 | -2.000   | .04130  | -.01320 | .00330  | .00120 | -.00030 | .00340  | .00000 | .00000 | .00000 |
| 648.000 | .000     | .08410  | -.01370 | .00100  | .00130 | -.00040 | .00140  | .00000 | .00000 | .00000 |
| 648.000 | 2.000    | .12370  | -.01120 | .00080  | .00110 | .00050  | .00340  | .00000 | .00000 | .00000 |
| 648.000 | 5.000    | .17710  | -.00840 | .00030  | .00100 | .00130  | .00560  | .00000 | .00000 | .00000 |
|         | GRADIENT | .02125  | .00040  | -.00033 | .00004 | .00023  | -.00154 | .00000 | .00000 | .00000 |

RUN NO. 1045/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CASO   | CABT   | CABS   |
|---------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 972.000 | -5.000   | -.04190 | -.01670 | .00640  | .00040 | -.00010 | .00340  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | .01170  | -.01350 | .00520  | .00080 | -.00060 | .00760  | .00000 | .00000 | .00000 |
| 972.000 | .000     | .05320  | -.01390 | .00300  | .00080 | -.00050 | .00140  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | .08770  | -.02330 | .00230  | .00170 | -.00070 | .00760  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .16710  | -.02210 | -.00160 | .00110 | -.00090 | .00740  | .00000 | .00000 | .00000 |
|         | GRADIENT | .02063  | -.00053 | -.00009 | .00006 | -.00007 | -.00241 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

## TABULATED SOURCE DATA, MSFC 571, (1A6A)

W571 (1A6A) ORB (013) WITH TANK (79) SEPARATING

MISSIONS (24 OCT 72)

## REFERENCE DATA

STEP = 2693.0000 SQ.FT. XMRP = 867.7000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 RREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .0001 WACH = 4.18E  
 ELEVR = .0001 ALCON = .000  
 RUDEE = .0001 RUDEE = 47.000  
 DELTAA = 5.000 DELTAS = .000  
 DELTAY = .000 DELTAZ = 162.000

RUN NO. 1065/ 0 RN/L = 4.90 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN     | CLM     | CY      | CYN    | CEL     | CAF     | CASO   | CAS    | CSES   |
|-------|----------|--------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000  | -5.000   | .01760 | -.00050 | .00370  | .00060 | .00010  | .11210  | .00000 | .00000 | .00000 |
| .000  | -2.000   | .03200 | -.00070 | .00380  | .00030 | -.00010 | .11280  | .00000 | .00000 | .00000 |
| .000  | .000     | .04420 | -.00020 | .00370  | .00070 | .00030  | .10160  | .00000 | .00000 | .00000 |
| .000  | 2.000    | .05520 | -.00260 | .00260  | .00050 | .00020  | .09470  | .00000 | .00000 | .00000 |
| .000  | 5.000    | .06020 | -.00610 | .00230  | .00070 | .00050  | .09720  | .00000 | .00000 | .00000 |
|       | GRADIENT | .06620 | -.00055 | -.00016 | .00002 | .00004  | -.00232 | .00000 | .00000 | .00000 |

RUN NO. 1068/ 0 RN/L = 4.89 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN     | CLM     | CY      | CYN     | CEL    | CAF     | CASO   | CAS    | CSES   |
|---------|----------|--------|---------|---------|---------|--------|---------|--------|--------|--------|
| 324.000 | -5.000   | .02100 | -.00500 | .00380  | .00040  | .00000 | .10160  | .00000 | .00000 | .00000 |
| 324.000 | -2.000   | .06420 | -.00200 | .00310  | .00090  | .00000 | .09320  | .00000 | .00000 | .00000 |
| 324.000 | .000     | .08350 | .00010  | .00180  | .00100  | .00070 | .08350  | .00000 | .00000 | .00000 |
| 324.000 | 2.000    | .10230 | .00040  | -.00230 | .00040  | .00040 | .08240  | .00000 | .00000 | .00000 |
| 324.000 | 5.000    | .13320 | .00280  | -.00190 | .00030  | .00070 | .07870  | .00000 | .00000 | .00000 |
|         | GRADIENT | .01099 | .00076  | -.00058 | -.00001 | .00007 | -.00222 | .00000 | .00000 | .00000 |

RUN NO. 1069/ 0 RN/L = 5.06 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN     | CLM     | CY      | CYN    | CEL     | CAF     | CASO   | CAS    | CSES   |
|---------|----------|--------|---------|---------|--------|---------|---------|--------|--------|--------|
| 648.000 | -5.000   | .02190 | -.01420 | .00170  | .00080 | -.00140 | .10530  | .00000 | .00000 | .00000 |
| 648.000 | -2.000   | .07910 | -.01570 | .00070  | .00130 | -.00060 | .08680  | .00000 | .00000 | .00000 |
| 648.000 | .000     | .12030 | -.01340 | .00040  | .00120 | .00050  | .09270  | .00000 | .00000 | .00000 |
| 648.000 | 2.000    | .14390 | -.01060 | -.00180 | .00100 | .00060  | .09130  | .00000 | .00000 | .00000 |
| 648.000 | 5.000    | .19070 | -.00640 | -.00340 | .00000 | .00120  | .08500  | .00000 | .00000 | .00000 |
|         | GRADIENT | .01678 | .00095  | -.00053 | .00001 | .00027  | -.00136 | .00000 | .00000 | .00000 |

RUN NO. 1072/ 0 RN/L = 4.98 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN    | CEL     | CAF     | CASO   | CAS    | CSES   |
|---------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 972.000 | -5.000   | -.00220 | -.01950 | .00090  | .00070 | -.00080 | .11050  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | .04830  | -.02350 | .00350  | .00100 | -.00030 | .09760  | .00000 | .00000 | .00000 |
| 972.000 | .000     | .08870  | -.02210 | .00250  | .00080 | -.00020 | .09180  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | .12740  | -.02400 | -.00130 | .00070 | -.00030 | .07990  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .20300  | -.02450 | -.00250 | .00000 | -.00030 | .07620  | .00000 | .00000 | .00000 |
|         | GRADIENT | .02042  | -.00055 | -.00003 | .00000 | -.00005 | -.00037 | .00000 | .00000 | .00000 |

\*571 (1A6A) ORB (013) WITH TANK (T9) SEPARATING

ISSUES 12 OCT 73

## REFERENCE DATA

STEP = 2690.0000 SQ.FT. XMRP = 867.7000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 RREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

BETA = .0000 WCH = 4.360  
 ELEV8 = .0000 ADJ8 = .0000  
 RORR = .0000 ELEV3 = 40.000  
 DELTA8 = -5.000 DELTA3 = .0000  
 DELTA4 = .0000 DELTA2 = -88.000

## PARAMETRIC DATA

RUN NO. 1027/ 0 RN/L = 5.03 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM      | CY      | CYN    | CEL     | CAP     | CASC   | CAS*   | CASS   |
|-------|----------|---------|----------|---------|--------|---------|---------|--------|--------|--------|
| .000  | -5.000   | -1.1300 | -0.01020 | .00860  | .00070 | -.00020 | .03720  | .00000 | .00000 | .00000 |
| .000  | -2.000   | -.06720 | -0.01120 | .00710  | .00070 | .00000  | .03550  | .00000 | .00000 | .00000 |
| .000  | .000     | -.02200 | -0.01260 | .00580  | .00060 | .00000  | .03720  | .00000 | .00000 | .00000 |
| .000  | 2.000    | .03590  | -0.01410 | .00320  | .00030 | -.00020 | .07760  | .00000 | .00000 | .00000 |
| .000  | 5.000    | .14740  | -0.01920 | -.00170 | .00130 | -.00090 | .07650  | .00000 | .00000 | .00000 |
|       | GRADIENT | .02772  | -.00328  | -.00102 | .00006 | -.00005 | -.00203 | .00000 | .00000 | .00000 |

RUN NO. 1028/ 0 RN/L = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM      | CY     | CYN    | CEL     | CAP     | CASC   | CAS*   | CASS   |
|---------|----------|---------|----------|--------|--------|---------|---------|--------|--------|--------|
| 324.000 | -5.000   | -.11180 | -0.00890 | .00140 | .00040 | .00000  | .03760  | .00000 | .00000 | .00000 |
| 324.000 | -2.000   | -.07190 | -0.00990 | .00050 | .00070 | .00000  | .03690  | .00000 | .00000 | .00000 |
| 324.000 | .000     | -.03000 | -0.01070 | .00070 | .00070 | .00010  | .03730  | .00000 | .00000 | .00000 |
| 324.000 | 2.000    | .01400  | -0.01230 | .00450 | .00030 | .00000  | .07720  | .00000 | .00000 | .00000 |
| 324.000 | 5.000    | .10430  | -0.01620 | .00150 | .00120 | -.00120 | .07710  | .00000 | .00000 | .00000 |
|         | GRADIENT | .02332  | -.00072  | .00099 | .00003 | -.00002 | -.00242 | .00000 | .00000 | .00000 |

RUN NO. 1029/ 0 RN/L = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM      | CY      | CYN    | CEL     | CAP     | CASC   | CAS*   | CASS   |
|---------|----------|---------|----------|---------|--------|---------|---------|--------|--------|--------|
| 648.000 | -5.000   | -.13910 | -0.00970 | .00070  | .00010 | .00000  | .03760  | .00000 | .00000 | .00000 |
| 648.000 | -2.000   | -.07430 | -0.00890 | .00030  | .00050 | .00000  | .03710  | .00000 | .00000 | .00000 |
| 648.000 | .000     | -.03630 | -0.00970 | .00030  | .00040 | .00000  | .03750  | .00000 | .00000 | .00000 |
| 648.000 | 2.000    | .00370  | -0.00890 | .00580  | .00000 | .00000  | .07650  | .00000 | .00000 | .00000 |
| 648.000 | 5.000    | .07330  | -0.01070 | .00170  | .00130 | .00000  | .07620  | .00000 | .00000 | .00000 |
|         | GRADIENT | .02066  | -.00079  | -.00078 | .00003 | -.00000 | -.00234 | .00000 | .00000 | .00000 |

RUN NO. 1030/ 0 RN/L = 4.88 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM      | CY      | CYN    | CEL     | CAP     | CASC   | CAS*   | CASS   |
|---------|----------|---------|----------|---------|--------|---------|---------|--------|--------|--------|
| 972.000 | -5.000   | -.12930 | -0.00990 | .00060  | .00040 | .00000  | .03720  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.07110 | -0.00890 | .00040  | .00030 | .00000  | .03710  | .00000 | .00000 | .00000 |
| 972.000 | .000     | -.04020 | -0.01020 | .00000  | .00040 | -.00020 | .03730  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | .00250  | -0.00990 | .00470  | .00070 | .00000  | .07620  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .06690  | -0.01060 | .00030  | .00090 | .00020  | .07630  | .00000 | .00000 | .00000 |
|         | GRADIENT | .01945  | -.00018  | -.00076 | .00006 | .00001  | -.00232 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, NSFC 571, (A6A)

PAGE

M571(A6A) OFB (013) WITH TAX (79) SEPARATING

RESORT 104 OCT 73

REFERENCE DATA

STEP = 2630.0000 SQ.FT. XMRP = 867.7000 IN.  
 LREF = 1220.3000 IN. YMRP = .0000 IN.  
 SEEF = 1220.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0140

BETA = .0000 WACH = 4.95  
 CLEVEL = .0000  
 SUDOS = .0000  
 DELTA = .0000  
 DELTA = .0000  
 DELTA = .0000

PARABOLIC DATA

RUN NO. 1037/ 0 RN/L = 4.97 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN     | CLM     | CY      | CYN    | CEL    | CAF     | CASO   | CST    | CSES   |
|-------|----------|--------|---------|---------|--------|--------|---------|--------|--------|--------|
| .000  | -5.000   | -12380 | -01390  | .00750  | .00090 | -00050 | .03690  | .00000 | .00000 | .00000 |
| .000  | -2.000   | -05070 | -01320  | .00690  | .00100 | -00010 | .03690  | .00000 | .00000 | .00000 |
| .000  | .000     | .00760 | -01650  | .00300  | .00050 | -00050 | .03150  | .00000 | .00000 | .00000 |
| .000  | 2.000    | .07090 | -01840  | .00120  | .00090 | -00110 | .03150  | .00000 | .00000 | .00000 |
| .000  | 5.000    | .17920 | -01720  | -.01240 | .00130 | .00040 | .03260  | .00000 | .00000 | .00000 |
|       | GRADIENT | .03059 | -.00046 | -.00105 | .00003 | .00004 | -.00151 | .00000 | .00000 | .00000 |

RUN NO. 1038/ 0 RN/L = 4.97 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN     | CLM     | CY      | CYN    | CEL    | CAF     | CASO   | CST    | CSES   |
|---------|----------|--------|---------|---------|--------|--------|---------|--------|--------|--------|
| 324.000 | -5.000   | -13670 | -01160  | .00710  | .00020 | -00050 | .03240  | .00000 | .00000 | .00000 |
| 324.000 | -2.000   | -07620 | -01150  | .00600  | .00070 | -00030 | .03610  | .00000 | .00000 | .00000 |
| 324.000 | .000     | -03040 | -01310  | .00380  | .00060 | -00030 | .03750  | .00000 | .00000 | .00000 |
| 324.000 | 2.000    | .02410 | -01310  | .00280  | .00030 | -00020 | .03750  | .00000 | .00000 | .00000 |
| 324.000 | 5.000    | .12320 | -01710  | .00100  | .00010 | -00010 | .03240  | .00000 | .00000 | .00000 |
|         | GRADIENT | .02586 | -.00052 | -.00054 | .00003 | .00002 | -.00249 | .00000 | .00000 | .00000 |

RUN NO. 1043/ 0 RN/L = 4.96 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN     | CLM     | CY      | CYN    | CEL    | CAF     | CASO   | CST    | CSES   |
|---------|----------|--------|---------|---------|--------|--------|---------|--------|--------|--------|
| 648.000 | -5.000   | -12940 | -01010  | .00970  | .00110 | -00030 | .03200  | .00000 | .00000 | .00000 |
| 648.000 | -2.000   | -07610 | -00720  | .00710  | .00100 | -00050 | .03620  | .00000 | .00000 | .00000 |
| 648.000 | .000     | -03550 | -00840  | .00640  | .00090 | -00050 | .03740  | .00000 | .00000 | .00000 |
| 648.000 | 2.000    | .00290 | -00990  | .00400  | .00070 | -00010 | .03730  | .00000 | .00000 | .00000 |
| 648.000 | 5.000    | .07870 | -01190  | .00090  | .00030 | .00000 | .03200  | .00000 | .00000 | .00000 |
|         | GRADIENT | .02558 | -.00025 | -.00079 | .00005 | .00002 | -.00249 | .00000 | .00000 | .00000 |

RUN NO. 1044/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN     | CLM     | CY      | CYN    | CEL    | CAF     | CASO   | CST    | CSES   |
|---------|----------|--------|---------|---------|--------|--------|---------|--------|--------|--------|
| 972.000 | -5.000   | -13300 | -00930  | .00820  | .00110 | -00010 | .03570  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -07320 | -00990  | .00660  | .00070 | -00010 | .03760  | .00000 | .00000 | .00000 |
| 972.000 | .000     | -03930 | -00970  | .00680  | .00070 | -00010 | .03760  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | .00350 | -00970  | .00370  | .00030 | -00010 | .03730  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .06900 | -01020  | .00090  | .00010 | .00000 | .03200  | .00000 | .00000 | .00000 |
|         | GRADIENT | .01684 | -.00012 | -.00069 | .00005 | .00000 | -.00249 | .00000 | .00000 | .00000 |

MS71 (1A5A) OFB (013) WITH TIME (T9) SEPARATING

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 667.7000 IN.  
 LREF = 1329.3000 IN. VMRP = .0000 IN.  
 BREF = 1329.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0740

SEPA =  
 ELSP =  
 SUDSP =  
 DELTA =  
 DELTA =

## REFERENCE DATA

RUN NO. 1066/ 0 RN/L = 4.89 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN     | CLM    | CY     | CYN    | CEL    | CAF    | CAS    | CAF    | CAS    |
|-------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| .000  | -5.000   | -11760 | -11130 | .0000  | .0000  | -11740 | .0000  | .0000  | .0000  | .0000  |
| .000  | -2.000   | -11100 | -11100 | .0000  | .0000  | -11100 | .0000  | .0000  | .0000  | .0000  |
| .000  | .000     | .04500 | .01700 | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  |
| .000  | 2.000    | .12000 | .01900 | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  |
| .000  | 5.000    | .19700 | .01500 | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  |
|       | GRADIENT | .00154 | .00123 | .00107 | .00104 | .00100 | .00100 | .00100 | .00100 | .00100 |

RUN NO. 1067/ 0 RN/L = 4.90 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN     | CLM    | CY     | CYN    | CEL    | CAF    | CAS    | CAF    | CAS    |
|-------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| .000  | -5.000   | -12490 | -11190 | .0000  | .0000  | -12490 | .0000  | .0000  | .0000  | .0000  |
| .000  | -2.000   | -10550 | -11140 | .0000  | .0000  | -10550 | .0000  | .0000  | .0000  | .0000  |
| .000  | .000     | .00820 | .01490 | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  |
| .000  | 2.000    | .04320 | .01600 | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  |
| .000  | 5.000    | .15370 | .02180 | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  |
|       | GRADIENT | .02612 | .00197 | .00106 | .00101 | .00105 | .00100 | .00100 | .00100 | .00100 |

RUN NO. 1077/ 0 RN/L = 5.03 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN     | CLM    | CY     | CYN    | CEL    | CAF    | CAS    | CAF    | CAS    |
|-------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| .000  | -5.000   | -13190 | -11190 | .0000  | .0000  | -13190 | .0000  | .0000  | .0000  | .0000  |
| .000  | -2.000   | -10720 | -11180 | .0000  | .0000  | -10720 | .0000  | .0000  | .0000  | .0000  |
| .000  | .000     | .02270 | .01900 | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  |
| .000  | 2.000    | .11250 | .01160 | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  |
| .000  | 5.000    | .09470 | .01150 | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  |
|       | GRADIENT | .02547 | .00139 | .00100 | .00104 | .00104 | .00100 | .00100 | .00100 | .00100 |

RUN NO. 1071/ 0 RN/L = 5.01 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN     | CLM    | CY     | CYN    | CEL    | CAF    | CAS    | CAF    | CAS    |
|-------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| .000  | -5.000   | -13150 | -11120 | .0000  | .0000  | -13150 | .0000  | .0000  | .0000  | .0000  |
| .000  | -2.000   | -10790 | -11140 | .0000  | .0000  | -10790 | .0000  | .0000  | .0000  | .0000  |
| .000  | .000     | .02800 | .01140 | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  |
| .000  | 2.000    | .11410 | .01110 | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  |
| .000  | 5.000    | .07600 | .01100 | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  | .0000  |
|       | GRADIENT | .02459 | .00134 | .00103 | .00104 | .00104 | .00100 | .00100 | .00100 | .00100 |

DATE 27 OCT 73

TABULATED SOURCE DATA, MSCF 571, (IAGA)

PAGE 9

M571 (IAGA) ORB (013) WITH TANK (79) SEPARATING

(R85079) (04 OCT 73)

## REFERENCE DATA

SPEF = 2690.0000 SQ.FT. XWSP = 867.7000 IN.  
 LSEF = 1328.3000 IN. YWSP = .0000 IN.  
 RSEF = 1328.3000 IN. ZWSP = .0000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .0000 WACH = 4.957  
 ELEVR = .0000 ALECON = .0000  
 RUDDER = .0000 RUDDLE = 40.000  
 DELTAA = 10.000 DELTAS = .0000  
 DELTAY = .0000 DELTAZ = 486.000

RUN NO. 1085/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN     | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|--------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000     | -5.000 | -.0220 | -.0190  | .00840  | .00100 | -.00030 | .09807  | .00000 | .00000 | .00000 |
| .000     | -2.000 | .04270 | -.02260 | .00310  | .00120 | -.00190 | .08920  | .00000 | .00000 | .00000 |
| .000     | .000   | .10360 | -.02190 | -.00070 | .00160 | .00000  | .09040  | .00000 | .00000 | .00000 |
| .000     | 2.000  | .15570 | -.01790 | .00020  | .00130 | .00080  | .09050  | .00000 | .00000 | .00000 |
| .000     | 5.000  | .20710 | -.00940 | -.00220 | .00110 | .00130  | .08650  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02623 | .00102  | -.00101 | .00001 | .00023  | -.00095 | .00000 | .00000 | .00000 |

RUN NO. 1088/ 0 RN/L = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 324.000  | -5.000 | -.03330 | -.01660 | .00720  | .00110 | -.00040 | .09660  | .00000 | .00000 | .00000 |
| 324.000  | -2.000 | -.01850 | -.01710 | .00550  | .00140 | -.00040 | .08470  | .00000 | .00000 | .00000 |
| 324.000  | .000   | .03980  | -.02040 | .00230  | .00130 | -.00110 | .08080  | .00000 | .00000 | .00000 |
| 324.000  | 2.000  | .10970  | -.02350 | -.00040 | .00150 | -.00020 | .07890  | .00000 | .00000 | .00000 |
| 324.000  | 5.000  | .22830  | -.02590 | -.00600 | .00170 | -.00050 | .08080  | .00000 | .00000 | .00000 |
| GRADIENT |        | .03209  | -.00102 | -.00134 | .00006 | -.00004 | -.00156 | .00000 | .00000 | .00000 |

RUN NO. 1089/ 0 RN/L = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 648.000  | -5.000 | -.12320 | -.01290 | .01020  | .00070 | -.00030 | .09760  | .00000 | .00000 | .00000 |
| 648.000  | -2.000 | -.06530 | -.01300 | .00710  | .00030 | -.00020 | .08510  | .00000 | .00000 | .00000 |
| 648.000  | .000   | -.01270 | -.01400 | .00650  | .00030 | -.00020 | .07960  | .00000 | .00000 | .00000 |
| 648.000  | 2.000  | .03230  | -.01530 | .00400  | .00100 | -.00020 | .07620  | .00000 | .00000 | .00000 |
| 648.000  | 5.000  | .11850  | -.01950 | -.00100 | .00140 | -.00040 | .07200  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02420  | -.00065 | -.00107 | .00006 | -.00001 | -.00251 | .00000 | .00000 | .00000 |

RUN NO. 1092/ 0 RN/L = 4.96 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 972.000  | -5.000 | -.12470 | -.01030 | .01040  | .00110 | -.00010 | .09360  | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | -.07490 | -.01030 | .00640  | .00140 | -.00020 | .08620  | .00000 | .00000 | .00000 |
| 972.000  | .000   | -.03090 | -.00970 | .00680  | .00140 | -.00010 | .08020  | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | .00690  | -.01020 | .00570  | .00130 | -.00010 | .07770  | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | .07710  | -.01080 | .00250  | .00180 | -.00010 | .07340  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02329  | -.00002 | -.00071 | .00007 | -.00000 | -.00231 | .00000 | .00000 | .00000 |

PARAMETRIC DATA

BETA = .000 WICH = 4.980  
 ELEVTR = .000 AIRCON = .000  
 RUDDER = .000 RUDDER = 40.000  
 DELTAA = .000 DELTAS = .000  
 DELTAY = .000 DELTAZ = 810.000

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XREF = 867.7000 IN.  
 LREF = 1228.3000 IN. YREF = .0000 IN.  
 BREF = 1228.3000 IN. ZREF = .0000 IN.  
 SCALE = .0040

RUN NO. 1031/ 0 RN/L = 4.99 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN       | CLM      | CY      | CYN    | CBL      | CAF     | CABO   | CABT   | CABS   |
|----------|--------|----------|----------|---------|--------|----------|---------|--------|--------|--------|
| .000     | -5.000 | -1.2830  | -0.01040 | .01050  | .00060 | -0.00070 | .09800  | .00000 | .00000 | .00000 |
| .000     | -2.000 | -0.07690 | -0.01050 | .00650  | .00070 | -0.00040 | .09830  | .00000 | .00000 | .00000 |
| .000     | .000   | -0.03520 | -0.00990 | .00680  | .00080 | -0.00040 | .08200  | .00000 | .00000 | .00000 |
| .000     | 2.000  | .00970   | -0.00980 | .00450  | .00080 | .00030   | .07900  | .00000 | .00000 | .00000 |
| .000     | 5.000  | .00050   | -0.01040 | .00240  | .00100 | .00010   | .07470  | .00000 | .00000 | .00000 |
| GRADIENT |        | .00095   | .00002   | -.00077 | .00014 | .00009   | -.00233 | .00000 | .00000 | .00000 |

RUN NO. 1032/ 0 RN/L = 4.98 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN       | CLM      | CY      | CYN    | CBL      | CAF     | CABO   | CABT   | CABS   |
|----------|--------|----------|----------|---------|--------|----------|---------|--------|--------|--------|
| 324.000  | -5.000 | -1.2670  | -0.00900 | .01040  | .00070 | -0.00040 | .09780  | .00000 | .00000 | .00000 |
| 324.000  | -2.000 | -0.07110 | -0.01230 | .00710  | .00080 | -0.00030 | .09670  | .00000 | .00000 | .00000 |
| 324.000  | .000   | -0.03040 | -0.01000 | .00710  | .00070 | -0.00020 | .08130  | .00000 | .00000 | .00000 |
| 324.000  | 2.000  | .00600   | -0.01060 | .00430  | .00090 | .00030   | .07850  | .00000 | .00000 | .00000 |
| 324.000  | 5.000  | .00760   | -0.01130 | .00090  | .00140 | -0.00010 | .07490  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02013   | -.00014  | -.00093 | .00005 | .00003   | -.00226 | .00000 | .00000 | .00000 |

RUN NO. 1033/ 0 RN/L = 4.97 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN       | CLM      | CY      | CYN    | CBL      | CAF     | CABO   | CABT   | CABS   |
|----------|--------|----------|----------|---------|--------|----------|---------|--------|--------|--------|
| 648.000  | -5.000 | -1.2450  | -0.01020 | .00750  | .00060 | -0.00040 | .09720  | .00000 | .00000 | .00000 |
| 648.000  | -2.000 | -0.07150 | -0.01050 | .00570  | .00040 | -0.00040 | .09630  | .00000 | .00000 | .00000 |
| 648.000  | .000   | -0.03520 | -0.01010 | .00620  | .00080 | .00000   | .08400  | .00000 | .00000 | .00000 |
| 648.000  | 2.000  | .00340   | -0.00990 | .00450  | .00090 | -0.00060 | .07790  | .00000 | .00000 | .00000 |
| 648.000  | 5.000  | .00790   | -0.01020 | .00160  | .00100 | -0.00020 | .07380  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02018   | .00002   | -.00055 | .00005 | .00001   | -.00231 | .00000 | .00000 | .00000 |

RUN NO. 1034/ 0 RN/L = 4.97 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN       | CLM      | CY      | CYN    | CBL      | CAF     | CABO   | CABT   | CABS   |
|----------|--------|----------|----------|---------|--------|----------|---------|--------|--------|--------|
| 972.000  | -5.000 | -1.2970  | -0.01120 | .00730  | .00050 | -0.00040 | .09650  | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | -0.07150 | -0.01020 | .00640  | .00050 | -0.00030 | .09580  | .00000 | .00000 | .00000 |
| 972.000  | .000   | -0.02970 | -0.00980 | .00650  | .00060 | -0.00020 | .08050  | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | .00420   | -0.00990 | .00340  | .00070 | -0.00030 | .07740  | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | .00730   | -0.01070 | .00110  | .00090 | -0.00020 | .07260  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02002   | .00002   | -.00064 | .00004 | .00002   | -.00236 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, NSFC 571, (116A)

MS71 (116A) OBS (013) WITH TANK (19) SEPARATING

(R85011) (14 OCT 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 867.7000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

PARAMETRIC DATA

BETA = .000 MICR = 4.960  
 ELEVTR = .000 AIRLEN = .000  
 RUDDER = .000 RUDDLE = 40.000  
 DELTAA = 5.000 DELTAB = .000  
 DELTAY = .000 DELTAC = 810.000

RUN NO. 1015/ 0 RN/L = 4.90 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA X  | ALPHA  | CN     | CLM     | CY      | CYN     | CBL     | CAF     | CASO   | CABT   | CABS   |
|----------|--------|--------|---------|---------|---------|---------|---------|--------|--------|--------|
| .000     | -5.000 | -13210 | -0.0960 | .00990  | -.00020 | -.00040 | .09850  | .00000 | .00000 | .00000 |
| .000     | -2.000 | -07660 | -0.0130 | .00750  | .00030  | .00000  | .08790  | .00000 | .00000 | .00000 |
| .000     | .000   | -03880 | -0.0130 | .00640  | .00020  | .00000  | .08230  | .00000 | .00000 | .00000 |
| .000     | 2.000  | .00620 | -0.0940 | .00320  | .00060  | .00020  | .08000  | .00000 | .00000 | .00000 |
| .000     | 5.000  | .07860 | -0.0130 | .00220  | .00060  | .00020  | .07520  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02102 | -.00003 | -.00074 | .00003  | .00006  | -.00228 | .00000 | .00000 | .00000 |

RUN NO. 1016/ 0 RN/L = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA X  | ALPHA  | CN     | CLM     | CY      | CYN    | CBL    | CAF     | CASO   | CABT   | CABS   |
|----------|--------|--------|---------|---------|--------|--------|---------|--------|--------|--------|
| 324.000  | -5.000 | -12570 | -0.0930 | .01080  | .00050 | .00000 | .09320  | .00000 | .00000 | .00000 |
| 324.000  | -2.000 | -06690 | -0.0140 | .00690  | .00050 | .00000 | .08740  | .00000 | .00000 | .00000 |
| 324.000  | .000   | -03540 | -0.0120 | .00740  | .00070 | .00010 | .08200  | .00000 | .00000 | .00000 |
| 324.000  | 2.000  | .00440 | -0.0160 | .00480  | .00060 | .00010 | .07900  | .00000 | .00000 | .00000 |
| 324.000  | 5.000  | .07670 | -0.0130 | .00350  | .00050 | .00030 | .07510  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01591 | -.00006 | -.00070 | .00004 | .00003 | -.00228 | .00000 | .00000 | .00000 |

RUN NO. 1017/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA X  | ALPHA  | CN     | CLM     | CY      | CYN    | CBL    | CAF     | CASO   | CABT   | CABS   |
|----------|--------|--------|---------|---------|--------|--------|---------|--------|--------|--------|
| 648.000  | -5.000 | -12830 | -0.0950 | .00980  | .00040 | .00000 | .09820  | .00000 | .00000 | .00000 |
| 648.000  | -2.000 | -07180 | -0.0980 | .00910  | .00050 | .00000 | .08720  | .00000 | .00000 | .00000 |
| 648.000  | .000   | -03600 | -0.0120 | .00690  | .00040 | .00000 | .08220  | .00000 | .00000 | .00000 |
| 648.000  | 2.000  | .00430 | -0.0970 | .00630  | .00080 | .00000 | .07850  | .00000 | .00000 | .00000 |
| 648.000  | 5.000  | .07290 | -0.0110 | .00380  | .00100 | .00010 | .07440  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01997 | -.00005 | -.00061 | .00006 | .00001 | -.00234 | .00000 | .00000 | .00000 |

RUN NO. 1018/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA X  | ALPHA  | CN     | CLM      | CY      | CYN    | CBL    | CAF     | CASO   | CABT   | CABS   |
|----------|--------|--------|----------|---------|--------|--------|---------|--------|--------|--------|
| 972.000  | -5.000 | -13170 | -0.01080 | .00990  | .00020 | .00000 | .09770  | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | -07200 | -0.0890  | .00910  | .00050 | .00000 | .08650  | .00000 | .00000 | .00000 |
| 972.000  | .000   | -03420 | -0.0940  | .00850  | .00030 | .00010 | .08190  | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | .00380 | -0.0970  | .00640  | .00060 | .00020 | .07960  | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | .06800 | -0.0110  | .00360  | .00090 | .00020 | .07440  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01993 | .00003   | -.00064 | .00007 | .00003 | -.00228 | .00000 | .00000 | .00000 |

PARAMETRIC DATA

BETA = .000 MACH = 4.960  
 ELEVR = .000 AILEON = .000  
 RUDDER = .000 DELTAZ = 40.000  
 DELTAX = 10.000 DELTAY = .000  
 DELTAX = 810.000

REFERENCE DATA

WMP = 2697.0000 SQ.FT.  
 WMP = 1328.3000 IN.  
 WMP = 1328.3000 IN.  
 SCALE = .0040

RUN NO. 1096/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTAZ   | ALPHA  | CN      | CLM      | CY      | CYN    | CBL     | CAF     | CASO   | CABT   | CASS   |
|----------|--------|---------|----------|---------|--------|---------|---------|--------|--------|--------|
| .000     | -5.000 | -1.1070 | -1.01000 | .01040  | .00110 | -.00010 | .09610  | .00000 | .00000 | .00000 |
| .000     | -2.000 | -.07250 | -.01130  | .00580  | .00080 | -.00020 | .00700  | .00000 | .00000 | .00000 |
| .000     | .000   | -.02310 | -.01080  | .00540  | .00040 | .00000  | .00170  | .00000 | .00000 | .00000 |
| .000     | 2.000  | .01460  | -.01000  | .00470  | .00080 | .00000  | .07860  | .00000 | .00000 | .00000 |
| .000     | 5.000  | .09590  | -.01120  | .00270  | .00110 | .00000  | .07370  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02254  | -.00014  | -.00070 | .00000 | .00004  | -.00239 | .00000 | .00000 | .00000 |

RUN NO. 1087/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTAZ   | ALPHA  | CN       | CLM     | CY      | CYN    | CBL     | CAF     | CASO   | CABT   | CASS   |
|----------|--------|----------|---------|---------|--------|---------|---------|--------|--------|--------|
| 324.000  | -5.000 | -1.12650 | -.01070 | .00730  | .00070 | -.00020 | .09650  | .00000 | .00000 | .00000 |
| 324.000  | -2.000 | -.06890  | -.01000 | .00500  | .00090 | -.00020 | .08540  | .00000 | .00000 | .00000 |
| 324.000  | .000   | -.02880  | -.01060 | .00370  | .00090 | .00000  | .07990  | .00000 | .00000 | .00000 |
| 324.000  | 2.000  | .01150   | -.01030 | .00170  | .00090 | -.00010 | .07760  | .00000 | .00000 | .00000 |
| 324.000  | 5.000  | .08140   | -.01110 | -.00100 | .00110 | .00000  | .07350  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02069   | -.00004 | -.00083 | .00003 | .00002  | -.00225 | .00000 | .00000 | .00000 |

RUN NO. 1093/ 0 RN/L = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTAZ   | ALPHA  | CN       | CLM     | CY      | CYN    | CBL     | CAF     | CASO   | CABT   | CASS   |
|----------|--------|----------|---------|---------|--------|---------|---------|--------|--------|--------|
| 648.000  | -5.000 | -1.12850 | -.01110 | .00760  | .00080 | -.00040 | .09720  | .00000 | .00000 | .00000 |
| 648.000  | -2.000 | -.06320  | -.01070 | .00720  | .00120 | -.00010 | .08540  | .00000 | .00000 | .00000 |
| 648.000  | .000   | -.03170  | -.01090 | .00450  | .00080 | -.00020 | .08050  | .00000 | .00000 | .00000 |
| 648.000  | 2.000  | .01080   | -.01020 | .00360  | .00130 | .00000  | .07770  | .00000 | .00000 | .00000 |
| 648.000  | 5.000  | .07870   | -.01100 | .00100  | .00120 | .00000  | .07390  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02041   | -.00001 | -.00069 | .00004 | .00004  | -.00227 | .00000 | .00000 | .00000 |

RUN NO. 1091/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTAZ   | ALPHA  | CN       | CLM     | CY      | CYN     | CBL     | CAF     | CASO   | CABT   | CASS   |
|----------|--------|----------|---------|---------|---------|---------|---------|--------|--------|--------|
| 972.000  | -5.000 | -1.12670 | -.01070 | .00980  | .00140  | .00040  | .09770  | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | -.06890  | -.01080 | .00580  | .00110  | -.00000 | .08660  | .00000 | .00000 | .00000 |
| 972.000  | .000   | -.03400  | -.01100 | .00570  | .00100  | -.00020 | .08790  | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | .00640   | -.01100 | .00330  | .00120  | .00000  | .07790  | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | .07740   | -.01090 | .00070  | .00110  | -.00010 | .07410  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02019   | .00007  | -.00085 | -.00002 | -.00004 | -.00233 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, MSFC 571, (1A6A)

4571 (1A6A) ORB (013) WITH TANK (19) SEPARATING

15850131 (04 OCT 73)

REFERENCE DATA

STEF = 2690.0000 SQ.FT. XREF = 967.7000 IN. BETA = .0000 WACH = 4.960  
 LREF = 1328.3000 IN. YREF = .0000 IN. ELEVTR = 10.000 AILROW = .000  
 SREF = 1328.3000 IN. ZREF = .0000 IN. RUDDER = .0000 RUOFLR = 40.000  
 SCALE = .0040 DELTAA = .000 DELTAD = .000  
 DELTAX = .000 DELTAZ = .000

PARAMETRIC DATA

RUN NO. 1052/ 0 RN/L = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM      | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|---------|----------|---------|---------|---------|---------|--------|--------|--------|
| .000     | -5.000 | .009570 | -.000800 | .009400 | .001100 | .000110 | .00550  | .00000 | .00000 | .00000 |
| .000     | -2.000 | -.00200 | -.000800 | .009400 | .000600 | .000020 | .00870  | .00000 | .00000 | .00000 |
| .000     | .000   | -.00300 | -.001140 | .00720  | .00100  | .000020 | .00170  | .00000 | .00000 | .00000 |
| .000     | 2.000  | .00320  | -.001220 | .00620  | .00080  | .000060 | .00470  | .00000 | .00000 | .00000 |
| .000     | 5.000  | .00130  | -.001430 | .00530  | .00090  | .000100 | .00830  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01458  | -.00061  | -.00045 | -.00000 | .00009  | -.00372 | .00000 | .00000 | .00000 |

RUN NO. 1047/ 0 RN/L = 4.96 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN     | CLM     | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|--------|---------|---------|---------|---------|---------|--------|--------|--------|
| 972.000  | -5.000 | .00750 | -.00540 | .00600  | -.00010 | -.00050 | .00400  | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | .00420 | -.00590 | .00430  | .00050  | -.00030 | .00790  | .00000 | .00000 | .00000 |
| 972.000  | .000   | .00730 | -.00680 | .00180  | .00070  | .00000  | .00970  | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | .00860 | -.00850 | -.00100 | .00090  | .00010  | .00400  | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | .00980 | -.00130 | -.00230 | .00100  | .00010  | .00930  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02406 | -.00060 | -.00050 | .00011  | .00026  | -.00108 | .00000 | .00000 | .00000 |

REFERENCE DATA

SREF = 2690.0000 SQ.FT. YMRP = 867.7000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

PARAMETRIC DATA

BETA = .000 WICH = 4.960  
 ELEVTR = 10.000 ALERON = .000  
 RUDDER = .000 RUDDLE = 40.000  
 DELTAA = .000 DELTAB = .000  
 DELTAY = .000 DELTAC = 162.000

RUN NO. 1051/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN       | CLM      | CY       | CYN    | CBL      | CAF      | CABO   | CABT   | CABS   |
|-------|----------|----------|----------|----------|--------|----------|----------|--------|--------|--------|
| .000  | -5.000   | -0.05080 | -0.00470 | .00550   | .00050 | -0.00020 | .00340   | .00000 | .00000 | .00000 |
| .000  | -2.000   | -0.03190 | -0.00390 | .00430   | .00060 | -0.00020 | .00160   | .00000 | .00000 | .00000 |
| .000  | .000     | -0.00660 | -0.00490 | .00260   | .00040 | .00020   | .00740   | .00000 | .00000 | .00000 |
| .000  | 2.000    | .02420   | -0.00560 | .00330   | .00080 | .00030   | .00360   | .00000 | .00000 | .00000 |
| .000  | 5.000    | .06690   | -0.00310 | .00310   | .00120 | .00050   | .00260   | .00000 | .00000 | .00000 |
|       | GRADIENT | .01207   | -0.00035 | -0.00023 | .00007 | .00006   | -0.01155 | .00000 | .00000 | .00000 |

RUN NO. 1048/ 0 RN/L = 4.96 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN       | CLM      | CY       | CYN    | CBL      | CAF      | CABO   | CABT   | CABS   |
|---------|----------|----------|----------|----------|--------|----------|----------|--------|--------|--------|
| 972.000 | -5.000   | -0.03190 | -0.02210 | .00740   | .00070 | .00000   | .00160   | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | .01720   | -0.02410 | .00330   | .00090 | -0.00020 | .00160   | .00000 | .00000 | .00000 |
| 972.000 | .000     | .00230   | -0.02590 | .00300   | .00090 | -0.00040 | .00710   | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | .10760   | -0.02670 | .00200   | .00090 | -0.00030 | .00440   | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .19060   | -0.03060 | .00180   | .00150 | -0.00030 | .00260   | .00000 | .00000 | .00000 |
|         | GRADIENT | .02230   | -0.00082 | -0.00084 | .00007 | -0.00003 | -0.00180 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, MSFC 571, (IA6A)

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M571 (IA6A) ORB (003) WITH TANK (79) SEPARATING

(R95019) ( 04 OCT 72 )

# REFERENCE DATA

YREF = 2690.0000 50.FT. YMRP = 867.7000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

BETA = .000 MACH = 4.250  
 ELEVR = 10.000 AIRLEN = .000  
 RUDDER = .000 RUDDER = 40.000  
 DELTAA = 5.000 DELTAB = .000  
 DELTAY = .000 DELTAZ = 162.000

# PARAMETRIC DATA

RUN NO. 1076/ 0 RN/L = 4.98 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN     | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|-------|----------|--------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000  | -5.000   | .03095 | -.00770 | .00120  | .00093 | -.00020 | .11410  | .00000 | .00000 | .00000 |
| .000  | -2.000   | .04640 | -.00740 | .00230  | .00070 | -.00010 | .10930  | .00000 | .00000 | .00000 |
| .000  | .000     | .06770 | -.00650 | .00380  | .00110 | .00030  | .10490  | .00000 | .00000 | .00000 |
| .000  | 2.000    | .07680 | -.00880 | .00150  | .00090 | .00020  | .09920  | .00000 | .00000 | .00000 |
| .000  | 5.000    | .10510 | -.01260 | .00140  | .00100 | .00070  | .09210  | .00000 | .00000 | .00000 |
|       | GRADIENT | .00748 | -.00047 | -.00001 | .00002 | .00009  | -.00224 | .00000 | .00000 | .00000 |

RUN NO. 1073/ 0 RN/L = 5.00 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN     | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|---------|----------|--------|---------|---------|--------|---------|---------|--------|--------|--------|
| 972.000 | -5.000   | .01260 | -.02410 | .00610  | .00080 | -.00060 | .10330  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | .06880 | -.02790 | .00320  | .00120 | -.00080 | .09330  | .00000 | .00000 | .00000 |
| 972.000 | .000     | .10620 | -.03070 | .00180  | .00100 | -.00100 | .08940  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | .15010 | -.03260 | .00110  | .00140 | -.00120 | .08790  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .23630 | -.03460 | -.00170 | .00180 | -.00130 | .08550  | .00000 | .00000 | .00000 |
|         | GRADIENT | .02209 | -.00107 | -.00074 | .00009 | -.00007 | -.00164 | .00000 | .00000 | .00000 |

REFERENCE DATA

SEEP = 2690.0000 SQ.FT. X/RP = 887.7000 IN.  
 L/EP = 1729.3000 IN. Y/RP = .0000 IN.  
 BEP = 111.3000 IN. Z/RP = .0000 IN.  
 SCALE = .0040

BETA = .000 N/CA = 4.950  
 ELEVER = 10.000 R/CPA = .000  
 RUDDER = .000 R/DEL = 40.000  
 DELTAA = .000 DELTAS = .000  
 DELTAY = .000 DELTIZ = 486.000

PARAMETRIC DATA

RUN NO. 1050/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA X | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CYES   |
|---------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000    | -5.000   | -.11220 | -.01520 | .00950  | .00080 | .00000  | .09950  | .00000 | .00000 | .00000 |
| .000    | -2.000   | -.04140 | -.01750 | .00680  | .00100 | .00020  | .09950  | .00000 | .00000 | .00000 |
| .000    | .000     | .01930  | -.02200 | .00480  | .00090 | -.00020 | .02600  | .00000 | .00000 | .00000 |
| .000    | 2.000    | .09850  | -.02460 | .00340  | .00120 | -.00010 | .02610  | .00000 | .00000 | .00000 |
| .000    | 5.000    | .21360  | -.02570 | -.00060 | .00150 | .00150  | .09020  | .00000 | .00000 | .00000 |
|         | GRADIENT | .03205  | -.01115 | -.00089 | .00007 | .00012  | -.00032 | .00000 | .00000 | .00000 |

RUN NO. 1049/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA X | ALPHA    | CN      | CLM     | CY      | CYN    | CBL    | CAF     | CABO   | CABT   | CYES   |
|---------|----------|---------|---------|---------|--------|--------|---------|--------|--------|--------|
| 972.000 | -5.000   | -.12470 | -.01260 | .00850  | .00040 | .00000 | .09910  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.06320 | -.01210 | .00760  | .00090 | .00020 | .08790  | .00000 | .00000 | .00000 |
| 972.000 | .000     | -.01950 | -.01260 | .00720  | .00090 | .00040 | .08250  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | .01600  | -.01400 | .00470  | .00110 | .00020 | .08020  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .08790  | -.01580 | .00200  | .00120 | .00040 | .07780  | .00000 | .00000 | .00000 |
|         | GRADIENT | .02106  | -.00034 | -.00066 | .00019 | .00004 | -.00020 | .00000 | .00000 | .00000 |

TABULATED SOURCE DATA, MSFC 571, (1A6A)

DATE 27 OCT 73

(885017) (14 OCT 73)

W571(1A6A) CEB (0.3) WITH TANK (79) SEPARATING

PARAMETRIC DATA

REFERENCE DATA

SREF = 2650.0000 SQ.FT.      XMRP = 867.7000 IN.  
 LREF = 1328.3000 IN.      YMRP = .0000 IN.  
 SREF = 1328.3000 IN.      ZMRP = .0000 IN.  
 SCALE = .0040  
 BETA = .000      WACH = 4.960  
 ELEVTR = 10.000      AIRLON = .000  
 FLDDER = .000      SUPPER = 40.000  
 DELTAA = 5.000      DELTAS = .000  
 DELTAY = .000      DELTAZ = 486.000

RUN NO. 1075/ 0      RN/L = 4.99      GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|-------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000  | -5.000   | -.09840 | -.01770 | .00870  | .00130 | -.00030 | .09970  | .00000 | .00000 | .00000 |
| .000  | -2.000   | -.00340 | -.02750 | .00600  | .00090 | -.00080 | .09130  | .00000 | .00000 | .00000 |
| .000  | .000     | .06420  | -.02580 | .00340  | .00140 | -.00120 | .08900  | .00000 | .00000 | .00000 |
| .000  | 2.000    | .14800  | -.02750 | .00190  | .00160 | -.00090 | .09130  | .00000 | .00000 | .00000 |
| .000  | 5.000    | .22850  | -.02530 | -.00230 | .00150 | .00080  | .09400  | .00000 | .00000 | .00000 |
|       | GRADIENT | .03340  | -.00090 | -.00109 | .00004 | .00009  | -.00046 | .00000 | .00000 | .00000 |

RUN NO. 1074/ 0      RN/L = 4.99      GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|---------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 972.000 | -5.000   | -.11840 | -.01390 | .00780  | .00050 | -.00020 | .09850  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.06020 | -.01440 | .00780  | .00030 | -.00030 | .08800  | .00000 | .00000 | .00000 |
| 972.000 | .000     | -.01730 | -.01450 | .00690  | .00090 | .00000  | .08300  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | .03240  | -.01500 | .00440  | .00100 | .00000  | .08100  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .10010  | -.01780 | .00090  | .00130 | .00000  | .07830  | .00000 | .00000 | .00000 |
|         | GRADIENT | .02203  | -.00036 | -.00068 | .00007 | .00003  | -.00194 | .00000 | .00000 | .00000 |

TABULATED SOURCE DATA, MSEC 571, (1A6A)

DATE 27 OCT 73

1550000 174 OCT 73

M571 (1A6A) ORB (013) WITH TANK (T9) SEPARATING

REFERENCE DATA

SEEP = 2690.0000 89.FT. XMRP = 867.7000 IN.  
 LSEF = 1328.3000 IN. YMRP = .0000 IN.  
 REEF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

BETA = .000 VCM = 4.860  
 ELEVTR = -20.000 ELEVCM = .000  
 RUDPER = .000 RUDPLR = 40.000  
 DELTAA = .000 DELTAR = .000  
 DELTAV = .000 DELTVC = .000

PARAMETRIC DATA

RUN NO. 1053/ 0 RV/L = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CASO   | CABT   | CASS   |
|-------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000  | -5.000   | -13350  | .00110  | .01170  | .00000 | -.00020 | .10940  | .00000 | .00000 | .00000 |
| .000  | -2.000   | -10240  | -.00180 | .00980  | .00040 | .00000  | .09200  | .00000 | .00000 | .00000 |
| .000  | .000     | -106240 | -.00410 | .00750  | .00040 | .00010  | .09290  | .00000 | .00000 | .00000 |
| .000  | 2.000    | -103480 | -.00500 | .00780  | .00050 | .00020  | .07490  | .00000 | .00000 | .00000 |
| .000  | 5.000    | -101650 | -.00590 | .00740  | .00070 | .00050  | .06590  | .00000 | .00000 | .00000 |
|       | GRADIENT | .01464  | -.00071 | -.00044 | .00006 | .00007  | -.00434 | .00000 | .00000 | .00000 |

RUN NO. 1058/ 0 RV/L = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CASO   | CABT   | CASS   |
|---------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 972.000 | -5.000   | -103420 | .00970  | .00920  | .00000 | -.00080 | .10770  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -10480  | .00710  | .00350  | .00000 | -.00060 | .09230  | .00000 | .00000 | .00000 |
| 972.000 | .000     | -10920  | .00650  | .00240  | .00040 | .00010  | .08570  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | -11450  | .00520  | .00070  | .00060 | .00050  | .09260  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | -12010  | .00240  | -.00210 | .00060 | .00100  | .09320  | .00000 | .00000 | .00000 |
|         | GRADIENT | .02405  | -.00169 | -.00107 | .00006 | .00019  | -.00179 | .00000 | .00000 | .00000 |

(R05019) 104 OCT 73

MS71 (1A6A) ORB (013) WITH TANK (T9) SEPARATING

REFERENCE DATA

SREF = 2690.0000 SJ.FT. XMRP = 857.7000 IN.  
LREF = 1328.3000 IN. YMRP = .0000 IN.  
BREF = 1328.3000 IN. ZMRP = .0000 IN.  
SCALE = .0240

PARAMETRIC DATA

BETA = .000 WACH = 4.950  
ELEVTR = -20.000 ALEFON = .000  
RUDDER = .000 EDELE = 40.000  
DELTA = .000 DELTAB = .000  
DELTAZ = .000 DELTAZ = 152.000

RUN NO. 1054/ 0 RNVL = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CAB5   |
|----------|--------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000     | -5.000 | -1.0280 | .00410  | .00780  | .00040 | -.00030 | .10590  | .00000 | .00000 | .00000 |
| .000     | -2.000 | -.06480 | .00410  | .00600  | .00040 | .00000  | .10250  | .00000 | .00000 | .00000 |
| .000     | .000   | -.04220 | .00360  | .00580  | .00060 | .00000  | .09690  | .00000 | .00000 | .00000 |
| .000     | 2.000  | -.01830 | .00240  | .00580  | .00090 | .00000  | .09310  | .00000 | .00000 | .00000 |
| .000     | 5.000  | .02970  | .00030  | .00520  | .00090 | .01010  | .08660  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01303  | -.00039 | -.00023 | .00006 | .00003  | -.00199 | .00000 | .00000 | .00000 |

RUN NO. 1057/ 0 RNVL = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CAB5   |
|----------|--------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 972.000  | -5.000 | -.08200 | -.01070 | .00760  | .00040 | -.00100 | .10630  | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | -.01160 | -.01060 | .00710  | .00090 | -.00080 | .09200  | .00000 | .00000 | .00000 |
| 972.000  | .000   | .02160  | -.01360 | .00530  | .00090 | -.00080 | .08560  | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | .06200  | -.01430 | .00340  | .00130 | -.00090 | .08140  | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | .13840  | -.01590 | -.00080 | .00160 | -.00100 | .07750  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02154  | -.00058 | -.00085 | .00012 | -.00000 | -.00020 | .00000 | .00000 | .00000 |

REFERENCE DATA

SREF = 2690.0000 SQ.FT.  
 LREF = 1328.3000 IN.  
 BREF = 1328.3000 IN.  
 SCALE = .0043

WREF = 57.7000 IN.  
 YREF = .0000 IN.  
 ZREF = .00.3 IN.

PARAMETRIC DATA

BETA = .000  
 ELEVTR = -20.000  
 FLDER = .000  
 DELTAA = 5.000  
 DELTAY = .000  
 DELTAZ = 162.000

RUN NO. 1080/ 0 RNVL = 4.96 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CASO   | CASB   | CAS    |
|----------|--------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000     | -5.000 | -.01720 | .00520  | .00540  | .00100 | -.00020 | .11430  | .00000 | .00000 | .00000 |
| .000     | -2.000 | .00580  | .00420  | .00320  | .00030 | -.00030 | .11820  | .00000 | .00000 | .00000 |
| .000     | .000   | .01960  | .00260  | .00240  | .00060 | .00000  | .10320  | .00000 | .00000 | .00000 |
| .000     | 2.000  | .03430  | .00100  | .00290  | .00060 | .00000  | .09720  | .00000 | .00000 | .00000 |
| .000     | 5.000  | .06950  | -.00030 | .00410  | .00100 | .00000  | .08850  | .00000 | .00000 | .00000 |
| GRADIENT |        | .00846  | -.00053 | -.00012 | .00001 | .00007  | -.00261 | .00000 | .00000 | .00000 |

RUN NO. 1077/ 0 RNVL = 4.98 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CASO   | CASB   | CAS    |
|----------|--------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 972.000  | -5.000 | -.04140 | -.01060 | .00690  | .00050 | -.00100 | .10580  | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | .02440  | -.01350 | .00580  | .00030 | -.00070 | .09320  | .00000 | .00000 | .00000 |
| 972.000  | .000   | .06590  | -.01530 | .00300  | .00100 | -.00110 | .08560  | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | .10290  | -.01690 | .00160  | .00100 | -.00130 | .08240  | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | .17480  | -.01780 | -.00200 | .00170 | -.00140 | .07910  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02128  | -.00075 | -.00091 | .00011 | -.00006 | -.00267 | .00000 | .00000 | .00000 |

TABULATED SOURCE DATA, MSFC 571, (IAGA)

DATE 27 OCT 73

MS71 (IAGA) OFB (003) WITH TANK (19) SEPARATING

(R85021) 174 OCT 73

REFERENCE DATA

SREF = 2690.0000 SQ.FT. YMRP = 867.7000 IN.  
LREF = 1328.3000 IN. YMRP = .0000 IN.  
PREF = 1328.3000 IN. ZMRP = .0000 IN.  
SCALE = .0040

PARAMETRIC DATA

BETA = .0000 WACH = 4.350  
ELEVTR = -20.0000 ALLEON = .0000  
RLODER = .0000 RLOPLR = 40.000  
DELTA = .0000 DELTAB = .0000  
DELTAZ = .0000 DELTAZ = 486.000

RUN NO. 1055/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.03/ 5.10

| DELTA    | ALPHA  | CN       | CLM      | CY      | CYN    | CEL     | CAF    | CABO   | CABT   | CAES   |
|----------|--------|----------|----------|---------|--------|---------|--------|--------|--------|--------|
| .000     | -5.000 | -1.15760 | -1.00150 | .00090  | .00040 | -.00090 | .10460 | .00000 | .00000 | .00000 |
| .000     | -2.000 | -.08000  | -.00740  | .00050  | .00060 | -.00070 | .09060 | .00000 | .00000 | .00000 |
| .000     | .000   | -.01350  | -.00970  | .00670  | .00000 | -.00210 | .08550 | .00000 | .00000 | .00000 |
| .000     | 2.000  | .05520   | -.01230  | .00420  | .00100 | .00000  | .08390 | .00000 | .00000 | .00000 |
| .000     | 5.000  | .14990   | -.01210  | -.00060 | .00150 | .00000  | .08150 | .00000 | .00000 | .00000 |
| GRADIENT |        | .03116   | -.00065  | -.00107 | .00010 | .00000  | .07134 | .00000 | .00000 | .00000 |

RUN NO. 1056/ 0 RN/L = 4.92 GRADIENT INTERVAL = -4.17/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN    | CEL     | CAF     | CABO   | CABT   | CAES   |
|----------|--------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 972.000  | -5.000 | -.16400 | -.00320 | .01020  | .00060 | -.00060 | .10160  | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | -.10590 | -.00500 | .00710  | .00060 | -.00060 | .09790  | .00000 | .00000 | .00000 |
| 972.000  | .000   | -.06190 | -.00500 | .00680  | .00000 | -.00060 | .09360  | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | -.01930 | -.00590 | .00560  | .00000 | -.00020 | .08860  | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | .05220  | -.00590 | .00390  | .00110 | .00000  | .08600  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02161  | -.00026 | -.00059 | .00005 | .00006  | -.00273 | .00000 | .00000 | .00000 |



DATE 27 OCT 73

TABULATED SOURCE DATA, MSFC 571, (1A6A)

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M571 (1A6A) CEB (013) WITH TAXI (79) SEPARATING

(989023) 1 04 OCT 73

# REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 867.7000 IN.  
 LREF = 1228.3000 IN. YMRP = .0000 IN.  
 BREF = 1228.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

# PARAMETRIC DATA

BEYA = .000 MACH = 4.360  
 ELEVTR = -40.000 AIRSON = .000  
 RUDDER = .000 RUDDLR = 40.000  
 DELTAA = .000 DELTAB = .000  
 DELTAY = .000 DELTAZ = .000

RUN NO. 1064/ 0 RN/L = 4.90 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN    | CEL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000     | -5.000 | -.17380 | .00700  | .00920  | .00040 | -.00050 | .13030  | .00000 | .00000 | .00000 |
| .000     | -2.000 | -.11650 | .00390  | .00800  | .00040 | -.00030 | .10760  | .00000 | .00000 | .00000 |
| .000     | .000   | -.09300 | .00280  | .00880  | .00100 | .00000  | .09560  | .00000 | .00000 | .00000 |
| .000     | 2.000  | -.05120 | .00020  | .00640  | .00020 | -.00010 | .08900  | .00000 | .00000 | .00000 |
| .000     | 5.000  | -.00010 | -.00280 | .00490  | .00080 | .00020  | .07370  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01723  | -.00097 | -.00043 | .00004 | .000    | -.00566 | .00000 | .00000 | .00000 |

RUN NO. 1059/ 0 RN/L = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN    | CEL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 972.000  | -5.000 | -.07960 | .01610  | .00850  | .00000 | -.00100 | .13350  | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | .00930  | .01150  | .00200  | .00100 | -.00130 | .12080  | .00000 | .00000 | .00000 |
| 972.000  | .000   | .06540  | .01050  | -.00130 | .00100 | -.00040 | .11500  | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | .10960  | .00830  | -.00040 | .00110 | .00010  | .11000  | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | .18040  | .00620  | .00020  | .00070 | .00070  | .10200  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02588  | -.00096 | -.00080 | .00006 | .00019  | -.00300 | .00000 | .00000 | .00000 |

M571 (1A6A) ORB (013) WITH TANK (79) SEPARATING (R69024) ( 04 OCT 73 )

REFERENCE DATA

STEF = 2690.0000 SQ.FT. XMRP = 867.7000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

PARAMETRIC DATA

BETA = .000 MACH = 4.960  
 ELEVTR = -40.000 AILEON = .000  
 RUDDER = .000 RUDEFLR = 40.000  
 DELTAA = .000 DELTAG = .000  
 DELTAY = .000 DELTAZ = 162.000

RUN NO. 1063/ 0 RN/L = 4.90 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN    | CEL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000     | -5.000 | -.13360 | .01220  | .00810  | .00040 | -.00080 | .12750  | .00000 | .00000 | .00000 |
| .000     | -2.000 | -.09360 | .00860  | .00480  | .00040 | -.00010 | .11930  | .00000 | .00000 | .00000 |
| .000     | .000   | -.07030 | .00820  | .00440  | .00060 | -.00010 | .11230  | .00000 | .00000 | .00000 |
| .000     | 2.000  | -.03720 | .00730  | .00810  | .00080 | .00000  | .10610  | .00000 | .00000 | .00000 |
| .000     | 5.000  | .00900  | .00320  | .00270  | .00100 | -.00010 | .09800  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01424  | -.00082 | -.00046 | .00007 | .00006  | -.00317 | .00000 | .00000 | .00000 |

RUN NO. 1060/ 0 RN/L = 4.90 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN    | CEL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 972.000  | -5.000 | -.11960 | -.00130 | .00880  | .00090 | -.00100 | .13330  | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | -.05650 | -.00430 | .00640  | .00070 | -.00090 | .11440  | .00000 | .00000 | .00000 |
| 972.000  | .000   | -.00760 | -.00640 | .00590  | .00100 | -.00110 | .10460  | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | .03570  | -.00800 | .00290  | .00100 | -.00130 | .09890  | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | .11060  | -.01070 | -.00170 | .00140 | -.00170 | .08930  | .00000 | .00000 | .00000 |
| GRADIENT |        | .02294  | -.00092 | -.00103 | .00009 | -.00007 | -.00437 | .00000 | .00000 | .00000 |

TABULATED SOURCE DATA, MSFC 571, (IA6A)

DATE 27 OCT 73

(R85025) ( 04 OCT 73 )

M571 (IA6A) ORB (013) WITH TANK (T9) SEPARATING

PARAMETRIC DATA  
BETA = .000 MACH = 4.960  
ELEVTR = -40.000 AILSON = .010  
RUDDER = .000 RUOFLR = 40.000  
DELTA = 5.000 DELTAB = .000  
DELTAY = .000 DELTAZ = 162.000

REFERENCE DATA

SPEF = 2690.0700 SQ.FT. XMRP = 867.7000 IN.  
LEEF = 1328.3000 IN. YMRP = .0000 IN.  
SEEF = 1328.3000 IN. ZMRP = .0000 IN.  
SCALE = .0040

RUN NO. 1081/ 0 RN/L = 4.96 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY     | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|-------|----------|---------|---------|--------|--------|---------|---------|--------|--------|--------|
| .000  | -5.000   | -.05840 | .01010  | .00370 | .00030 | -.00040 | .13410  | .00000 | .00000 | .00000 |
| .000  | -2.000   | -.03050 | .01000  | .00500 | .00030 | -.00020 | .12650  | .00000 | .00000 | .00000 |
| .000  | .000     | -.01150 | .00900  | .00510 | .00040 | -.00020 | .11820  | .00000 | .00000 | .00000 |
| .000  | 2.000    | .00890  | .00630  | .00380 | .00020 | -.00010 | .11030  | .00000 | .00000 | .00000 |
| .000  | 5.000    | .04630  | .00310  | .00460 | .00070 | .00010  | .09880  | .00000 | .00000 | .00000 |
|       | GRADIENT | .01038  | -.00073 | .00004 | .00003 | .00005  | -.00360 | .00000 | .00000 | .00000 |

RUN NO. 1084/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|---------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 972.000 | -5.000   | -.08650 | -.00390 | .00730  | .00060 | -.00140 | .13300  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.01970 | -.00800 | .00450  | .00160 | -.00110 | .11570  | .00000 | .00000 | .00000 |
| 972.000 | .000     | .02400  | -.01070 | .00300  | .00150 | -.00160 | .10490  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | .07410  | -.01080 | .00230  | .00190 | -.00170 | .09840  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .15010  | -.01350 | -.00230 | .00210 | -.00230 | .09110  | .00000 | .00000 | .00000 |
|         | GRADIENT | .02363  | -.00092 | -.00090 | .00014 | -.00010 | -.00421 | .00000 | .00000 | .00000 |

M571 (IA6A) ORB (013) WITH TANK (19) SEPARATING

(R85026) ( 04 OCT 73 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT.  
 LREF = 1328.3000 IN.  
 BREF = 1328.3000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 MACH = 4.963  
 ELEVTR = -40.000 AIRCON = .000  
 RUDDER = .000 RUDDFLR = 40.000  
 DELTAA = .000 DELTAB = .000  
 DELTAY = .000 DELTAZ = 486.000

RUN NO. 1062/ 0 RN/L = 4.90 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|-------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000  | -5.000   | -200350 | .00050  | .00990  | .00060 | -.00090 | .13350  | .00000 | .00000 | .00000 |
| .000  | -2.000   | -11420  | -.00140 | .00810  | .00100 | -.00040 | .11310  | .00000 | .00000 | .00000 |
| .000  | .000     | -.04940 | -.00390 | .00560  | .00100 | -.00080 | .10420  | .00000 | .00000 | .00000 |
| .000  | 2.000    | .02120  | -.00750 | .00220  | .00140 | -.00150 | .10010  | .00000 | .00000 | .00000 |
| .000  | 5.000    | .12440  | -.00760 | -.00110 | .00180 | -.00010 | .09860  | .00000 | .00000 | .00000 |
|       | GRADIENT | .03268  | -.00091 | -.00115 | .00012 | .00003  | -.00346 | .00000 | .00000 | .00000 |

RUN NO. 1061/ 0 RN/L = 4.90 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|---------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 972.000 | -5.000   | -20370  | .00460  | .01220  | .00080 | -.00080 | .13200  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -13650  | .00200  | .00660  | .00020 | -.00040 | .11290  | .00000 | .00000 | .00000 |
| 972.000 | .000     | -.09240 | -.00220 | .00610  | .00070 | -.00050 | .10280  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | -.04590 | .00000  | .00560  | .00110 | -.00060 | .09600  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .02680  | -.00150 | .00270  | .00130 | -.00040 | .08760  | .00000 | .00000 | .00000 |
|         | GRADIENT | .02299  | -.00059 | -.00085 | .00007 | .00003  | -.00441 | .00000 | .00000 | .00000 |

TABULATED SOURCE DATA. MSFC 571, (IAGA)

DATE 27 OCT 73

MS71(IAGA) ORB (013) WITH TANK (79) SEPARATING (R85027) ( 04 OCT 73 )

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 867.7000 IN.  
LREF = 1328.3000 IN. YMRP = .0000 IN.  
BREF = 1328.3000 IN. ZMRP = .0000 IN.  
SCALE = .0040

PARAMETRIC DATA

BETA = .000 WACH = 4.950  
ELEVTR = -.000000 AILSON = .000  
RUDDER = .000 ROPFLS = 40.000  
DELTA = 5.000 DELTAB = .000  
DELTAY = .000 DELTAZ = 426.000

RUN NO. 1082/ 0 RN/L = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY      | CYN    | CEL     | CAF     | CABO   | CABT   | CABS   |
|-------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000  | -5.000   | -.18760 | -.00060 | .00840  | .00060 | -.00090 | .13140  | .00000 | .00000 | .00000 |
| .000  | -2.000   | -.09270 | -.00260 | .00730  | .00110 | -.00070 | .11370  | .00000 | .00000 | .00000 |
| .000  | .000     | -.02110 | -.00650 | .00350  | .00100 | -.00180 | .10310  | .00000 | .00000 | .00000 |
| .000  | 2.000    | .03800  | -.00920 | -.00120 | .00190 | -.00160 | .10450  | .00000 | .00000 | .00000 |
| .000  | 5.000    | .14620  | -.00520 | -.00060 | .00160 | -.00020 | .10110  | .00000 | .00000 | .00000 |
|       | GRADIENT | .03397  | -.00062 | -.00107 | .00011 | .00006  | -.00293 | .00000 | .00000 | .00000 |

RUN NO. 1083/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN    | CEL     | CAF     | CABO   | CABT   | CABS   |
|---------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 972.000 | -5.000   | -.19890 | .00360  | .00980  | .00090 | -.00080 | .13140  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.13170 | .00230  | .00770  | .00090 | -.00020 | .11260  | .00000 | .00000 | .00000 |
| 972.000 | .000     | -.08730 | -.00080 | .00500  | .00090 | -.00060 | .10250  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | -.04500 | -.00090 | .00410  | .00130 | -.00060 | .09860  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .03670  | -.00090 | .00250  | .00160 | -.00040 | .08680  | .00000 | .00000 | .00000 |
|         | GRADIENT | .02330  | -.00060 | -.00075 | .00011 | .00002  | -.00440 | .00000 | .00000 | .00000 |

(R85103) ( 94 OCT 73 )

M571 (IAGA) TANK (19) SEPARATING FROM ORBITER (013)

## REFERENCE DATA

STEP = 2690.0000 SQ.FT.  
 LREF = 1228.3000 IN.  
 BREF = 1228.3000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 WLOH = 4.950  
 ELEVR = .000 ALEON = .000  
 RUDDER = .000 RUOPLR = 40.000  
 DELTAA = -5.000 DELTAD = .000  
 DELTAY = .000 DELTAZ = .000

RUN NO. 2019/ 0 RN/L = 5.01 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY      | CYN    | CEL     | CAF    | CABO   | CABT   | CABS   |
|-------|----------|---------|---------|---------|--------|---------|--------|--------|--------|--------|
| .000  | -5.000   | -.02110 | -.00790 | .00610  | .00230 | .00000  | .08420 | .00000 | .00000 | .00000 |
| .000  | -2.000   | .01910  | .00340  | .00360  | .00170 | -.00080 | .08220 | .00000 | .00000 | .00000 |
| .000  | .000     | .03170  | .01110  | .00580  | .00180 | -.00110 | .08270 | .00000 | .00000 | .00000 |
| .000  | 2.000    | .05670  | .01640  | .00290  | .00280 | -.00020 | .08350 | .00000 | .00000 | .00000 |
| .000  | 5.000    | .10180  | .02710  | .00390  | .00320 | -.00050 | .08650 | .00000 | .00000 | .00000 |
|       | GRADIENT | .01189  | .00347  | -.00021 | .00012 | -.00002 | .00021 | .00000 | .00000 | .00000 |

RUN NO. 2020/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN     | CLM     | CY      | CYN    | CEL     | CAF    | CABO   | CABT   | CABS   |
|---------|----------|--------|---------|---------|--------|---------|--------|--------|--------|--------|
| 324.000 | -5.000   | .00920 | -.01410 | .00620  | .00210 | -.00230 | .08490 | .00000 | .00000 | .00000 |
| 324.000 | -2.000   | .02060 | -.00120 | .00390  | .00260 | -.00100 | .08440 | .00000 | .00000 | .00000 |
| 324.000 | .000     | .03540 | .00670  | .00590  | .00230 | -.00270 | .08630 | .00000 | .00000 | .00000 |
| 324.000 | 2.000    | .08400 | .01140  | .00270  | .00240 | -.00130 | .08580 | .00000 | .00000 | .00000 |
| 324.000 | 5.000    | .08790 | .02120  | .00350  | .00260 | -.00090 | .08820 | .00000 | .00000 | .00000 |
|         | GRADIENT | .00794 | .00348  | -.00027 | .00004 | .00011  | .00034 | .00000 | .00000 | .00000 |

RUN NO. 2021/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN     | CEL     | CAF     | CABO   | CABT   | CABS   |
|---------|----------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| 648.000 | -5.000   | -.04110 | -.02510 | -.00030 | .00460  | -.00240 | .09530  | .00000 | .00000 | .00000 |
| 648.000 | -2.000   | .00740  | -.01620 | .00340  | .00350  | -.00020 | .09300  | .00000 | .00000 | .00000 |
| 648.000 | .000     | .02380  | -.00870 | .00750  | .00330  | -.00080 | .09520  | .00000 | .00000 | .00000 |
| 648.000 | 2.000    | .04600  | -.00040 | .00600  | .00320  | -.00250 | .09170  | .00000 | .00000 | .00000 |
| 648.000 | 5.000    | .07730  | .01210  | .00910  | .00270  | -.00090 | .09290  | .00000 | .00000 | .00000 |
|         | GRADIENT | .01154  | .00375  | .00090  | -.00017 | .00024  | -.00025 | .00000 | .00000 | .00000 |

RUN NO. 2022/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN     | CLM     | CY      | CYN     | CEL     | CAF    | CABO   | CABT   | CABS   |
|---------|----------|--------|---------|---------|---------|---------|--------|--------|--------|--------|
| 972.000 | -5.000   | .00550 | -.01330 | -.00740 | .00450  | -.00180 | .09690 | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | .01850 | -.01250 | .00520  | .00340  | -.00080 | .10460 | .00000 | .00000 | .00000 |
| 972.000 | .000     | .02550 | -.01170 | .00620  | .00170  | -.00160 | .10450 | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | .03600 | -.00720 | .00260  | .00330  | -.00150 | .10240 | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .06010 | .00250  | .00000  | .00270  | -.00170 | .10320 | .00000 | .00000 | .00000 |
|         | GRADIENT | .00531 | .00154  | .00144  | -.00016 | -.00002 | .00039 | .00000 | .00000 | .00000 |



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TABULATED SOURCE DATA, MSFC 571, (1A6A)

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MS71 (1A6A) TANK (TS) SEPARATING FROM ORBITER (013)

(8955702) ( 24 OCT 73 )

REFERENCE DATA

SREF = 2690.0000 SQ.FT.  
LREF = 1328.3000 IN.  
BREF = 1328.3000 IN.  
SCALE = .0040

BETA = .000 MACH = 4.560  
ELEVTR = .000 AILSON = .000  
RUDDER = .000 RUDDFLR = 40.000  
DELTA = .000 DELTAA = .000  
DELTAZ = .000 DELTAY = .000

PARAMETRIC DATA

RUN NO. 2035/ 0 RNVL = 4.97 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| .000     | -5.000 | -.07360 | -.01810 | .00250  | .00070  | -.00240 | .08410  | .00000 | .00000 | .00000 |
| .000     | -2.000 | -.04500 | -.00930 | .00100  | .00150  | -.00140 | .08320  | .00000 | .00000 | .00000 |
| .000     | .000   | -.01800 | .00130  | .00070  | .00080  | -.00150 | .08470  | .00000 | .00000 | .00000 |
| .000     | 2.000  | .00490  | .00590  | .00300  | .00060  | -.00200 | .08320  | .00000 | .00000 | .00000 |
| .000     | 5.000  | .03660  | .01640  | .00130  | .00100  | -.00180 | .08230  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01122  | .00350  | -.00003 | -.00001 | .00003  | -.00016 | .00000 | .00000 | .00000 |

RUN NO. 2040/ 0 RNVL = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY     | CYN     | CBL     | CAF    | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|--------|---------|---------|--------|--------|--------|--------|
| 324.000  | -5.000 | -.07810 | -.02920 | .00360 | .00130  | -.00190 | .08530 | .00000 | .00000 | .00000 |
| 324.000  | -2.000 | -.04470 | -.02000 | .00480 | .00480  | -.00120 | .08540 | .00000 | .00000 | .00000 |
| 324.000  | .000   | -.01830 | -.01310 | .00900 | .00210  | -.00130 | .08630 | .00000 | .00000 | .00000 |
| 324.000  | 2.000  | .00610  | -.00670 | .00840 | .00190  | -.00130 | .08690 | .00000 | .00000 | .00000 |
| 324.000  | 5.000  | .02900  | .00580  | .00350 | .00200  | -.00180 | .08520 | .00000 | .00000 | .00000 |
| GRADIENT |        | .01098  | .00348  | .00011 | -.00003 | .00001  | .00004 | .00000 | .00000 | .00000 |

RUN NO. 2041/ 0 RNVL = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY     | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|--------|--------|---------|---------|--------|--------|--------|
| 648.000  | -5.000 | -.08530 | -.04190 | .00570 | .00060 | -.00170 | .09580  | .00000 | .00000 | .00000 |
| 648.000  | -2.000 | -.05830 | -.03610 | .00530 | .00250 | -.00120 | .09260  | .00000 | .00000 | .00000 |
| 648.000  | .000   | -.03990 | -.02230 | .00720 | .00230 | -.00260 | .09170  | .00000 | .00000 | .00000 |
| 648.000  | 2.000  | -.01760 | -.02130 | .00600 | .00290 | -.00140 | .09110  | .00000 | .00000 | .00000 |
| 648.000  | 5.000  | .01980  | -.00860 | .00850 | .00290 | .00010  | .08930  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01046  | .00338  | .00027 | .00021 | .00014  | -.00061 | .00000 | .00000 | .00000 |

RUN NO. 2046/ 0 RNVL = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY     | CYN     | CBL     | CAF    | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|--------|---------|---------|--------|--------|--------|--------|
| 972.000  | -5.000 | -.07050 | -.02530 | .00400 | .00230  | -.00020 | .10090 | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | -.05550 | -.03430 | .00150 | .00030  | -.00070 | .10380 | .00000 | .00000 | .00000 |
| 972.000  | .000   | -.04460 | -.03360 | .00430 | .00310  | -.00210 | .10890 | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | -.02990 | -.03150 | .00730 | .00230  | -.00230 | .10660 | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | -.00250 | -.02740 | .00720 | .00300  | -.00050 | .10190 | .00000 | .00000 | .00000 |
| GRADIENT |        | .00674  | -.00308 | .00140 | -.00001 | -.00003 | .00001 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, MSFC 571, (1A6A)

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M571 (1A6A) TANK (T9) SEPARATING FROM ORBITER (013)

(R85T03) ( 24 OCT 73 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. YMRP = 929.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 MACH = 4.960  
 ELEVR = .000 AIRLON = .000  
 RUDDER = .000 RUFLR = 40.000  
 DELTAA = -5.000 DELTAB = .000  
 DELTAY = .000 DELTAZ = 162.000

RUN NO. 2026/ 0 RNVL = 5.01 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY     | CYN    | CBL     | CAF    | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|--------|--------|---------|--------|--------|--------|--------|
| .000     | -5.000 | -.02430 | -.00110 | .00230 | .00190 | -.00020 | .00080 | .00000 | .00000 | .00000 |
| .000     | -2.000 | .01810  | .00960  | .00030 | .00270 | .00000  | .00230 | .00000 | .00000 | .00000 |
| .000     | .000   | .04160  | .01650  | .00000 | .00330 | -.00110 | .00260 | .00000 | .00000 | .00000 |
| .000     | 2.000  | .06730  | .02430  | .00540 | .00250 | -.00120 | .00590 | .00000 | .00000 | .00000 |
| .000     | 5.000  | .11560  | .03070  | .00710 | .00200 | -.00030 | .00740 | .00000 | .00000 | .00000 |
| GRADIENT |        | .01376  | .00324  | .00099 | .00702 | -.00005 | .00069 | .00000 | .00000 | .00000 |

RUN NO. 2025/ 0 RNVL = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN    | CBL     | CAF    | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|--------|---------|--------|--------|--------|--------|
| 324.000  | -5.000 | -.01630 | -.00210 | .00640  | .00300 | .00030  | .00620 | .00000 | .00000 | .00000 |
| 324.000  | -2.000 | .01950  | .00960  | .00390  | .00160 | -.00170 | .00440 | .00000 | .00000 | .00000 |
| 324.000  | .000   | .03470  | .01770  | .00610  | .00220 | -.00110 | .00590 | .00000 | .00000 | .00000 |
| 324.000  | 2.000  | .06350  | .02240  | .00290  | .00290 | -.00100 | .00510 | .00000 | .00000 | .00000 |
| 324.000  | 5.000  | .10630  | .03190  | .00210  | .00300 | -.00140 | .00930 | .00000 | .00000 | .00000 |
| GRADIENT |        | .01209  | .00337  | -.00041 | .00004 | -.00012 | .00029 | .00000 | .00000 | .00000 |

RUN NO. 2024/ 0 RNVL = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN    | CBL     | CAF    | CABO   | CABT   | CAES   |
|----------|--------|---------|---------|---------|--------|---------|--------|--------|--------|--------|
| 648.000  | -5.000 | -.01860 | -.00160 | .00670  | .00210 | -.00130 | .00620 | .00000 | .00000 | .00000 |
| 648.000  | -2.000 | .01470  | .00370  | .00190  | .00250 | -.00120 | .00470 | .00000 | .00000 | .00000 |
| 648.000  | .000   | .04210  | .01310  | .00610  | .00180 | -.00010 | .00600 | .00000 | .00000 | .00000 |
| 648.000  | 2.000  | .05800  | .02210  | .00130  | .00270 | -.00070 | .00560 | .00000 | .00000 | .00000 |
| 648.000  | 5.000  | .09660  | .03210  | .00160  | .00380 | -.00020 | .00750 | .00000 | .00000 | .00000 |
| GRADIENT |        | .01142  | .00347  | -.00046 | .00015 | .00011  | .00014 | .00000 | .00000 | .00000 |

RUN NO. 2023/ 0 RNVL = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CAES   |
|----------|--------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| 972.000  | -5.000 | -.02340 | -.00160 | .00570  | .00380  | .00030  | .00130  | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | .01450  | .00190  | .00610  | .00230  | -.00160 | .00580  | .00000 | .00000 | .00000 |
| 972.000  | .000   | .04190  | .00880  | .00210  | .00250  | -.00020 | .00540  | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | .05790  | .01990  | .00940  | .00180  | .00000  | .00750  | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | .09640  | .03090  | .00370  | .00220  | -.00140 | .00730  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01182  | .00428  | -.00006 | -.00016 | -.00009 | -.00039 | .00000 | .00000 | .00000 |



TABULATED SOURCE DATA, MSFC 571, (1A6A)

DATE 27 OCT 73

MS71 (1A6A) TANK (19) SEPARATING FROM ORBITER (013)

(SSSTC4) 1 04 OCT 73

REFERENCE DATA  
SREF = 2690.0000 SQ.FT.  
LREI = 1328.3000 IN.  
BREF = 1328.3000 IN.  
SCALE = .0040  
XMRP = 929.0000 IN.  
YMRP = .0000 IN.  
ZMRP = .0000 IN.  
BETA = .000 MACH = 4.950  
ELEVTR = .000 AIRLON = .000  
RUDDER = .000 RUDFLR = 40.000  
DELTA = .000 DELTAB = .000  
DELTAZ = 162.000  
DELTAZ = 162.000

PARAMETRIC DATA

RUN NO. 2036/ 0 RNVL = 4.97 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | ON      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000     | -5.000 | -.07250 | -.01080 | .00970  | .00150 | -.00220 | .09770  | .00700 | .00000 | .00000 |
| .000     | -2.000 | -.04790 | -.00220 | .00170  | .00190 | -.00170 | .08390  | .00000 | .00000 | .00000 |
| .000     | .000   | -.02600 | .00720  | .00540  | .00230 | -.00070 | .08410  | .00000 | .00000 | .00000 |
| .000     | 2.000  | .00400  | .01160  | .00260  | .00200 | -.00480 | .08590  | .00000 | .00000 | .00000 |
| .000     | 5.000  | .03530  | .02030  | .00010  | .00180 | -.00340 | .08450  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01108  | .00316  | -.00080 | .00003 | -.00021 | -.00020 | .00000 | .00000 | .00000 |

RUN NO. 2039/ 0 RNVL = 4.96 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | ON      | CLM     | CY      | CYN    | CBL     | CAF    | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|--------|---------|--------|--------|--------|--------|
| 324.000  | -5.000 | -.08890 | -.01520 | -.00040 | .00270 | -.00040 | .08550 | .00000 | .00000 | .00000 |
| 324.000  | -2.000 | -.04800 | -.00430 | .00730  | .00170 | .00000  | .08700 | .00000 | .00000 | .00000 |
| 324.000  | .000   | -.02830 | .00570  | .00650  | .00140 | -.00110 | .08540 | .00000 | .00000 | .00000 |
| 324.000  | 2.000  | -.00610 | .01040  | .00270  | .00220 | -.00140 | .08540 | .00000 | .00000 | .00000 |
| 324.000  | 5.000  | .03100  | .02040  | .00290  | .00250 | -.00100 | .08680 | .00000 | .00000 | .00000 |
| GRADIENT |        | .01175  | .00358  | .00013  | .00100 | -.00010 | .00006 | .00000 | .00000 | .00000 |

RUN NO. 2042/ 0 RNVL = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | ON      | CLM     | CY     | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|--------|---------|---------|---------|--------|--------|--------|
| 648.000  | -5.000 | -.08960 | -.01810 | .00000 | .00300  | -.00100 | .08530  | .00000 | .00000 | .00000 |
| 648.000  | -2.000 | -.05690 | -.00770 | .00080 | .00200  | -.00220 | .08620  | .00000 | .00000 | .00000 |
| 648.000  | .000   | -.02850 | .00160  | .00520 | .00230  | -.00160 | .08590  | .00000 | .00000 | .00000 |
| 648.000  | 2.000  | -.01850 | .01090  | .00240 | .00220  | -.00200 | .08520  | .00000 | .00000 | .00000 |
| 648.000  | 5.000  | .01500  | .02260  | .00370 | .00140  | -.00130 | .08450  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01034  | .00415  | .00037 | -.00013 | -.00002 | -.00010 | .00000 | .00000 | .00000 |

RUN NO. 2045/ 0 RNVL = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | ON      | CLM     | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| 972.000  | -5.000 | -.08680 | -.03250 | .00820  | .00260  | .00020  | .08550  | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | -.05900 | -.01780 | -.00040 | .00120  | -.00110 | .08640  | .00000 | .00000 | .00000 |
| 972.000  | .000   | -.03770 | -.00560 | .00460  | .00230  | -.00240 | .08390  | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | -.03040 | .00650  | .00420  | .00270  | -.00340 | .08720  | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | .00610  | .02020  | .00190  | .00190  | -.0010  | .08790  | .00000 | .00000 | .00000 |
| GRADIENT |        | .00886  | .00558  | -.00012 | -.00001 | -.00000 | -.00000 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, NSFC 571, (IAGA)

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MS71 (IAGA) TANK (T9) SEPARATING FROM ORBITER (013) (R85T05) ( 24 OCT 73 )

## REFERENCE DATA

SREF = 2690.0000 53.47.  
 LREF = 1328.3000 IN.  
 BREF = 1328.3000 IN.  
 SCALE = .0240

## PARAMETRIC DATA

BETA = .000 WACH = 4.950  
 ELEVR = .000 AILSON = .000  
 RUDDER = .000 FUSTLE = 40.000  
 DELTAR = 5.000 DELTAR = .000  
 DELTAY = .000 DELTAY = 162.000

RUN NO. 2065/ 0 RV/L = 4.90 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA   | CN      | CLM    | CY      | CYN     | CEL     | CAF    | CASO   | CAS    |
|----------|---------|---------|--------|---------|---------|---------|--------|--------|--------|
| .000     | -1.6840 | .01650  | .01040 | .00310  | -.00180 | .03740  | .00000 | .00000 | .00000 |
| .000     | -.12750 | -.00990 | .00000 | -.00340 | -.00010 | .03630  | .00000 | .00000 | .00000 |
| .000     | -.09630 | -.00650 | .00310 | .00340  | -.00180 | .03620  | .00000 | .00000 | .00000 |
| .000     | -.07230 | .00340  | .00400 | .00400  | -.00100 | .03310  | .00000 | .00000 | .00000 |
| .000     | -.03770 | .01170  | .01340 | .00430  | -.00170 | .03220  | .00000 | .00000 | .00000 |
| GRADIENT | .01316  | .00279  | .00032 | -.00014 | -.00002 | -.00056 | .00000 | .00000 | .00000 |

RUN NO. 2068/ 0 RV/L = 4.89 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA   | CN      | CLM    | CY      | CYN     | CEL     | CAF    | CASO   | CAS    |
|----------|---------|---------|--------|---------|---------|---------|--------|--------|--------|
| 324.000  | -1.6820 | -.02120 | .01720 | -.00560 | -.00160 | .03480  | .00000 | .00000 | .00000 |
| 324.000  | -.11920 | -.01140 | .01870 | -.00530 | -.00160 | .03750  | .00000 | .00000 | .00000 |
| 324.000  | -.12800 | -.00240 | .01460 | -.00380 | -.00120 | .03650  | .00000 | .00000 | .00000 |
| 324.000  | -.08000 | .00140  | .01795 | -.00510 | -.00110 | .03430  | .00000 | .00000 | .00000 |
| 324.000  | -.04100 | .01280  | .01900 | -.00590 | -.00070 | .03400  | .00000 | .00000 | .00000 |
| GRADIENT | .01232  | .00329  | .00013 | -.00003 | .00004  | -.00018 | .00000 | .00000 | .00000 |

RUN NO. 2069/ 0 RV/L = 5.06 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA   | CN      | CLM    | CY      | CYN     | CEL     | CAF    | CASO   | CAS    |
|----------|---------|---------|--------|---------|---------|---------|--------|--------|--------|
| 648.000  | -1.6350 | -.02870 | .01520 | -.00570 | -.00120 | .03490  | .00000 | .00000 | .00000 |
| 648.000  | -.12940 | -.01940 | .01830 | -.00530 | -.00190 | .03400  | .00000 | .00000 | .00000 |
| 648.000  | -.10620 | -.01260 | .01480 | -.00460 | -.00150 | .03730  | .00000 | .00000 | .00000 |
| 648.000  | -.08710 | -.00460 | .01620 | -.00500 | -.00100 | .03340  | .00000 | .00000 | .00000 |
| 648.000  | -.05010 | .00730  | .01680 | -.00480 | -.00130 | .03160  | .00000 | .00000 | .00000 |
| GRADIENT | .01037  | .00359  | .00007 | .00009  | .00002  | -.00029 | .00000 | .00000 | .00000 |

RUN NO. 2072/ 0 RV/L = 4.98 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA   | CN      | CLM     | CY      | CYN     | CEL     | CAF    | CASO   | CAS    |
|----------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| 972.000  | -1.4760 | -.03910 | .02600  | -.00670 | -.00020 | .03400  | .00000 | .00000 | .00000 |
| 972.000  | -.11740 | -.03240 | .01380  | -.00170 | .00050  | .03770  | .00000 | .00000 | .00000 |
| 972.000  | -.09480 | -.02430 | .02170  | -.00410 | -.00020 | .03650  | .00000 | .00000 | .00000 |
| 972.000  | -.07310 | -.01310 | .01530  | -.00340 | -.00020 | .03740  | .00000 | .00000 | .00000 |
| 972.000  | -.05840 | .00060  | .01190  | -.00180 | -.00010 | .03710  | .00000 | .00000 | .00000 |
| GRADIENT | .01891  | .00409  | -.00116 | .00006  | -.00002 | -.00064 | .00000 | .00000 | .00000 |



DATE 27 OCT 73

TABULATED SOURCE DATA, MSC 571, (IAGA)

5-55 35

M571 (IAGA) TANK (TS) SEPARATING FROM ORBITER (OIS)

(955105) ( 04 OCT 73 )

REFERENCE DATA

SEEP = 2690.0000 53.4 FT.  
LREF = 1328.3500 IN.  
BREF = 1328.3500 IN.  
SCALE = .0040

ETA = .0000 MACH = 4.950  
ELEVTR = .0000 ALTITUDE = .000  
RUDER = .0000 RUDDER = 42.000  
DELTA = -5.000 DELTA = .000  
DELTA = .000 DELTA = 425.000

PARAMETRIC DATA

RUN NO. 2027/ 0 RVL = 5.03 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN     | CLM     | CY      | CYN    | CEL     | CAF    | CASO   | CASB   | CASS   |
|-------|----------|--------|---------|---------|--------|---------|--------|--------|--------|--------|
| .000  | -5.000   | .00040 | -.00100 | .00000  | .00170 | -.00010 | .00350 | .00000 | .00000 | .00000 |
| .000  | -2.000   | .00450 | .00750  | .00000  | .00250 | .00020  | .00370 | .00000 | .00000 | .00000 |
| .000  | .000     | .00690 | .01230  | .00310  | .00100 | .00000  | .00400 | .00000 | .00000 | .00000 |
| .000  | 2.000    | .00310 | .01760  | .00270  | .00270 | -.00110 | .00550 | .00000 | .00000 | .00000 |
| .000  | 5.000    | .02370 | .02370  | .00110  | .00230 | -.00140 | .00550 | .00000 | .00000 | .00000 |
|       | GRADIENT | .01239 | .01248  | -.00055 | .00006 | -.00016 | .00024 | .00000 | .00000 | .00000 |

RUN NO. 2028/ 0 RVL = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM    | CY      | CYN    | CEL     | CAF    | CASO   | CASB   | CASS   |
|---------|----------|---------|--------|---------|--------|---------|--------|--------|--------|--------|
| 324.000 | -5.000   | -.00310 | .00070 | .00230  | .00120 | -.00230 | .00290 | .00000 | .00000 | .00000 |
| 324.000 | -2.000   | .00020  | .00700 | -.00010 | .00230 | -.00110 | .00310 | .00000 | .00000 | .00000 |
| 324.000 | .000     | .00770  | .01360 | .00370  | .00130 | -.00110 | .00450 | .00000 | .00000 | .00000 |
| 324.000 | 2.000    | .00640  | .02300 | .00410  | .00220 | -.00080 | .00430 | .00000 | .00000 | .00000 |
| 324.000 | 5.000    | .01940  | .02560 | .00890  | .00130 | -.00130 | .00550 | .00000 | .00000 | .00000 |
|         | GRADIENT | .01215  | .00270 | .00071  | .00001 | .00010  | .00046 | .00000 | .00000 | .00000 |

RUN NO. 2029/ 0 RVL = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM    | CY     | CYN     | CEL     | CAF    | CASO   | CASB   | CASS   |
|---------|----------|---------|--------|--------|---------|---------|--------|--------|--------|--------|
| 648.000 | -5.000   | -.01720 | .00100 | .00150 | .00250  | -.00120 | .00210 | .00000 | .00000 | .00000 |
| 648.000 | -2.000   | .00270  | .00890 | .00220 | .00200  | -.00210 | .00330 | .00000 | .00000 | .00000 |
| 648.000 | .000     | .00250  | .01270 | .00010 | .00140  | -.00150 | .00360 | .00000 | .00000 | .00000 |
| 648.000 | 2.000    | .00280  | .01620 | .00410 | .00170  | -.00040 | .00530 | .00000 | .00000 | .00000 |
| 648.000 | 5.000    | .02520  | .02430 | .00200 | .00190  | -.00070 | .00660 | .00000 | .00000 | .00000 |
|         | GRADIENT | .01411  | .00233 | .00011 | -.00006 | .00013  | .00047 | .00000 | .00000 | .00000 |

RUN NO. 2030/ 0 RVL = 4.88 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN     | CEL     | CAF    | CASO   | CASB   | CASS   |
|---------|----------|---------|---------|---------|---------|---------|--------|--------|--------|--------|
| 972.000 | -5.000   | -.00210 | -.00040 | -.00130 | .00220  | -.00170 | .00230 | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | .00260  | .00930  | .00400  | .00220  | -.00120 | .00450 | .00000 | .00000 | .00000 |
| 972.000 | .000     | .00210  | .01220  | .00020  | .00190  | -.00130 | .00420 | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | .00280  | .01730  | .00560  | .00230  | -.00020 | .00630 | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .02630  | .02250  | .00190  | -.00230 | -.00130 | .00770 | .00000 | .00000 | .00000 |
|         | GRADIENT | .01300  | .00223  | .00003  | -.00013 | .00015  | .00054 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, MSFC 512, (IAG6)

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M571 (IAG6) TANK (79) SEPARATING FROM ORBITER (113)

(1955-73) (124 OCT 73)

## REFERENCE DATA

SREF = 2690.0000 53.4 FT. XMRP = 929.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 RREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 MICR = 4.380  
 ELECTR = .000 ADJRM = .000  
 RUDDER = .000 RUDR = 4.000  
 DELTAA = .000 DELTAE = .000  
 DELTAY = .000 DELTAZ = 4.5E-100

RUN NO. 2037/ 0 RVL = 4.97 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | ON      | CLM     | CY      | CYN     | CEL     | CAF    | CAB    | CAS    |
|-------|----------|---------|---------|---------|---------|---------|--------|--------|--------|
| .000  | -5.000   | -.06370 | -.01630 | -.00690 | .00230  | -.00150 | .03760 | .00000 | .00000 |
| .000  | -2.000   | -.02720 | -.00910 | .00050  | .00140  | -.00320 | .02850 | .00000 | .00000 |
| .000  | .000     | .00450  | -.00250 | .00570  | .00180  | -.00040 | .02430 | .00000 | .00000 |
| .000  | 2.000    | .02150  | .00490  | .00110  | .00190  | -.00090 | .03270 | .00000 | .00000 |
| .000  | 5.000    | .05940  | .01430  | .00320  | .00170  | -.00040 | .03440 | .00000 | .00000 |
|       | GRADIENT | .01221  | .00312  | .00089  | -.00003 | .00006  | .00007 | .00000 | .00000 |

RUN NO. 2038/ 0 RVL = 4.97 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | ON      | CLM     | CY      | CYN    | CEL     | CAF    | CAB    | CAS    |
|---------|----------|---------|---------|---------|--------|---------|--------|--------|--------|
| 324.000 | -5.000   | -.07160 | -.01380 | .00080  | .00140 | -.00110 | .03240 | .00000 | .00000 |
| 324.000 | -2.0     | -.02630 | -.00910 | -.00080 | .00130 | -.00010 | .03360 | .00000 | .00000 |
| 324.000 | .000     | .02230  | -.00490 | .00310  | .00170 | -.00070 | .03400 | .00000 | .00000 |
| 324.000 | 2.000    | .03210  | .00490  | .00470  | .00130 | -.00100 | .03260 | .00000 | .00000 |
| 324.000 | 5.000    | .05900  | .01380  | .00130  | .00160 | -.00110 | .03390 | .00000 | .00000 |
|         | GRADIENT | .01327  | .00286  | .00023  | .00002 | -.00003 | .00009 | .00000 | .00000 |

RUN NO. 2043/ 0 RVL = 4.96 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | ON      | CLM     | CY      | CYN    | CEL     | CAF     | CAB    | CAS    |
|---------|----------|---------|---------|---------|--------|---------|---------|--------|--------|
| 648.000 | -5.000   | -.06830 | -.01070 | .00760  | .00140 | -.00150 | .03600  | .00000 | .00000 |
| 648.000 | -2.000   | -.03900 | -.00790 | .00020  | .00120 | -.00100 | .03740  | .00000 | .00000 |
| 648.000 | .000     | -.00080 | -.00220 | .00180  | .00220 | -.00180 | .03440  | .00000 | .00000 |
| 648.000 | 2.000    | .02130  | .00490  | .00030  | .00190 | -.00110 | .03220  | .00000 | .00000 |
| 648.000 | 5.000    | .05400  | .01370  | .00270  | .00230 | -.00000 | .03540  | .00000 | .00000 |
|         | GRADIENT | .01262  | .00251  | -.00042 | .00010 | .00013  | -.00007 | .00000 | .00000 |

RUN NO. 2044/ 0 RVL = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | ON      | CLM     | CY      | CYN    | CEL     | CAF    | CAB    | CAS    |
|---------|----------|---------|---------|---------|--------|---------|--------|--------|--------|
| 972.000 | -5.000   | -.06300 | -.01400 | .00460  | .00220 | -.00100 | .03600 | .00000 | .00000 |
| 972.000 | -2.000   | -.04200 | -.00780 | .00020  | .00170 | -.00130 | .03470 | .00000 | .00000 |
| 972.000 | .000     | -.00370 | .00040  | -.00030 | .00220 | -.00120 | .03170 | .00000 | .00000 |
| 972.000 | 2.000    | .01960  | .00620  | .00340  | .00210 | -.00020 | .03510 | .00000 | .00000 |
| 972.000 | 5.000    | .05790  | .01370  | .00360  | .00270 | -.00010 | .03660 | .00000 | .00000 |
|         | GRADIENT | .01255  | .00287  | .00002  | .00005 | .00003  | .00016 | .00000 | .00000 |

TABULATED SOURCE DATA, MSFC 571, (115A)

DATE 27 OCT 73

RESSTOR: 04 OCT 73

W571 (1A6A) TANK (79) SEPARATING FROM ORBITER (013)

PARAMETRIC DATA

BETA = .000 MICR = 4.950  
ELEV = .000 ALT = 4.000  
RUDER = .000 RUDD = 40.000  
DELTA = 5.000 DELTAR = .000  
DELTA = .000 DELTAR = 455.000

REFERENCE DATA

SRF = 2897.0000 SQ.FT. YWRP = 929.0000 IN.  
LREF = 1328.3000 IN. YWRP = .0000 IN.  
BREF = 1328.3000 IN. ZWRP = .0000 IN.  
SCALE = .0040

RUN NO. 2066/ 0 RN/L = 4.89 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY      | CYN     | CEL     | CAF     | CASO   | CART   | CASS   |
|-------|----------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| .000  | -5.000   | -12620  | -.02390 | .01440  | -.00370 | -.00120 | .08350  | .00000 | .00000 | .00000 |
| .000  | -2.000   | -.08420 | -.01850 | .01350  | -.00420 | -.00000 | .08350  | .00000 | .00000 | .00000 |
| .000  | .000     | -.05770 | -.01360 | .00950  | -.00160 | -.00000 | .08470  | .00000 | .00000 | .00000 |
| .000  | 2.000    | -.03040 | -.00780 | .01210  | -.00190 | -.00020 | .08270  | .00000 | .00000 | .00000 |
| .000  | 5.000    | -.00110 | .00380  | .01420  | -.00080 | -.00000 | .08240  | .00000 | .00000 | .00000 |
|       | GRADIENT | .01261  | .00276  | -.00007 | -.00014 | .00003  | -.00014 | .00000 | .00000 | .00000 |

RUN NO. 2067/ 7 RN/L = 4.90 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN     | CEL    | CAF    | CASO   | CART   | CASS   |
|---------|----------|---------|---------|---------|---------|--------|--------|--------|--------|--------|
| 324.000 | -5.000   | -.13450 | -.01860 | .01710  | -.00510 | .00100 | .08390 | .00000 | .00000 | .00000 |
| 324.000 | -2.000   | -.08430 | -.01570 | .01310  | -.00420 | .00090 | .08370 | .00000 | .00000 | .00000 |
| 324.000 | .000     | -.05720 | -.01060 | .01310  | -.00320 | .00000 | .08510 | .00000 | .00000 | .00000 |
| 324.000 | 2.000    | -.03370 | -.00860 | .01140  | -.00370 | .00000 | .08420 | .00000 | .00000 | .00000 |
| 324.000 | 5.000    | -.00280 | .00310  | .00980  | -.00400 | .00010 | .08360 | .00000 | .00000 | .00000 |
|         | GRADIENT | .01310  | .00212  | -.00071 | .00011  | .00000 | .00000 | .00000 | .00000 | .00000 |

RUN NO. 2070/ 0 RN/L = 5.03 GRADIENT VAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN     | CEL     | CAF     | CASO   | CART   | CASS   |
|---------|----------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| 648.000 | -5.000   | -.14420 | -.02150 | .01450  | -.00330 | .00000  | .08430  | .00000 | .00000 | .00000 |
| 648.000 | -2.000   | -.07600 | -.01200 | .01310  | -.00170 | -.00000 | .08390  | .00000 | .00000 | .00000 |
| 648.000 | .000     | -.06950 | -.01150 | .01120  | -.00290 | .00000  | .08340  | .00000 | .00000 | .00000 |
| 648.000 | 2.000    | -.04560 | -.00550 | .00940  | -.00270 | .00000  | .08440  | .00000 | .00000 | .00000 |
| 648.000 | 5.000    | -.01160 | .00310  | .00920  | -.00260 | .00000  | .08410  | .00000 | .00000 | .00000 |
|         | GRADIENT | .01357  | .00234  | -.00058 | .00009  | .00001  | -.00013 | .00000 | .00000 | .00000 |

RUN NO. 2071/ 0 RN/L = 5.01 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN     | CEL     | CAF     | CASO   | CART   | CASS   |
|---------|----------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| 972.000 | -5.000   | -.14570 | -.02370 | .01210  | -.00720 | -.00120 | .08470  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.09920 | -.01730 | .01500  | -.00570 | -.00020 | .08410  | .00000 | .00000 | .00000 |
| 972.000 | .000     | -.07610 | -.01170 | .01470  | -.00570 | -.00020 | .08390  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | -.04600 | -.00450 | .01340  | -.00590 | .00000  | .08370  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | -.00710 | .00430  | .01170  | -.00570 | -.00150 | .08290  | .00000 | .00000 | .00000 |
|         | GRADIENT | .01378  | .00303  | -.00119 | .00017  | -.00002 | -.00016 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, MSFC 571, (1A6A)

PAGE 36

M571 (1A6A) TANK (19) SEPARATING FROM ORBITER (023)

(R05709) ( 24 OCT 73 )

## REFERENCE DATA

SSEF = 2690.0000 SQ.FT. YMRP = 929.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 WACH = 4.560  
 ELEVTR = .000 AILCON = .000  
 RUDDER = .000 RUDDLE = 40.000  
 DELTAA = 10.000 DELTAB = .000  
 DELTAY = .000 DELTAZ = 486.000

RUN NO. 2085/ 0 RV/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN     | CLM     | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|--------|---------|---------|---------|---------|---------|--------|--------|--------|
| .000     | -5.000 | -23820 | -.02410 | .01920  | -.00570 | -.00170 | .08570  | .00000 | .00000 | .00000 |
| .000     | -2.000 | -16810 | -.02420 | .01320  | -.00360 | .00020  | .08570  | .00000 | .00000 | .00000 |
| .000     | .000   | -13270 | -.02170 | .01020  | -.00370 | .00020  | .08560  | .00000 | .00000 | .00000 |
| .000     | 2.000  | -10190 | -.01740 | .01570  | -.00570 | .00020  | .08490  | .00000 | .00000 | .00000 |
| .000     | 5.000  | -05640 | -.01040 | .01650  | -.00510 | .00000  | .08500  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01797 | .00142  | -.00015 | -.00002 | .00015  | -.00009 | .00000 | .00000 | .00000 |

RUN NO. 2088/ 0 RV/L = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN     | CLM     | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|--------|---------|---------|---------|---------|---------|--------|--------|--------|
| 324.000  | -5.000 | -22650 | -.02860 | .01810  | -.00640 | -.00010 | .08580  | .00000 | .00000 | .00000 |
| 324.000  | -2.000 | -17530 | -.02130 | .01830  | -.00530 | .00000  | .08810  | .00000 | .00000 | .00000 |
| 324.000  | .000   | -12970 | -.02120 | .01840  | -.00560 | -.00010 | .08750  | .00000 | .00000 | .00000 |
| 324.000  | 2.000  | -10030 | -.01410 | .01880  | -.00670 | .00000  | .08570  | .00000 | .00000 | .00000 |
| 324.000  | 5.000  | -06230 | -.00810 | .01730  | -.00650 | -.00020 | .08360  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01674 | .00202  | -.00005 | -.00006 | -.00003 | -.00027 | .00000 | .00000 | .00000 |

RUN NO. 2089/ 0 RV/L = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN     | CLM     | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|--------|---------|---------|---------|---------|---------|--------|--------|--------|
| 648.000  | -5.000 | -23400 | -.03680 | .01420  | -.00670 | .00000  | .08890  | .00000 | .00000 | .00000 |
| 648.000  | -2.000 | -18670 | -.02570 | .01600  | -.00630 | -.00080 | .08750  | .00000 | .00000 | .00000 |
| 648.000  | .000   | -14380 | -.02130 | .02020  | -.00710 | -.00110 | .08360  | .00000 | .00000 | .00000 |
| 648.000  | 2.000  | -11940 | -.01360 | .01750  | -.00800 | -.00120 | .08350  | .00000 | .00000 | .00000 |
| 648.000  | 5.000  | -07630 | -.00700 | .01190  | -.00370 | -.00020 | .08330  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01592 | .00299  | -.00015 | .00021  | -.00002 | -.00062 | .00000 | .00000 | .00000 |

RUN NO. 2092/ 0 RV/L = 4.96 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN     | CLM     | CY     | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|--------|---------|--------|---------|---------|---------|--------|--------|--------|
| 972.000  | -5.000 | -22700 | -.04510 | .01340 | -.00430 | -.00040 | .08650  | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | -18430 | -.02980 | .01840 | -.00580 | -.00020 | .08460  | .00000 | .00000 | .00000 |
| 972.000  | .000   | -15790 | -.02260 | .01690 | -.00520 | -.00100 | .08430  | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | -13170 | -.01740 | .01490 | -.00450 | -.00080 | .08590  | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | -07820 | -.00670 | .01790 | -.00560 | -.00190 | .08330  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01464 | .00374  | .00027 | -.00007 | -.00008 | -.00023 | .00000 | .00000 | .00000 |

M571 (1A6A) TANK (T9) SEPARATING FROM ORBITER (013)

(R85T10) ( 04 OCT 73 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. YMRP = 929.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 MACH = 4.960  
 ELEVTR = .000 AILRON = .000  
 RUDDER = .000 RUDDLR = 40.000  
 DELTAA = .000 DELTAB = .000  
 DELTAY = .000 DELTAZ = 610.000

RUN NO. 2031/ 0 RN/L = 4.99 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN     | CBL     | CAF    | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|---------|---------|--------|--------|--------|--------|
| .000     | -5.000 | -.05870 | -.01220 | .00360  | .00280  | -.00100 | .00090 | .00000 | .00000 | .00000 |
| .000     | -2.000 | -.02340 | -.00410 | .00260  | .00190  | -.00070 | .00120 | .00000 | .00000 | .00000 |
| .000     | .000   | -.00420 | .00270  | -.00420 | .00300  | -.00210 | .00930 | .00000 | .00000 | .00000 |
| .000     | 2.000  | .02420  | .00750  | -.00520 | .00280  | -.00040 | .00990 | .00000 | .00000 | .00000 |
| .000     | 5.000  | .07250  | .01590  | .00060  | .00180  | -.00010 | .00370 | .00000 | .00000 | .00000 |
| GRADIENT |        | .01295  | .00282  | -.00053 | -.00006 | .00011  | .00020 | .00000 | .00000 | .00000 |

RUN NO. 2032/ 0 RN/L = 4.98 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN     | CBL     | CAF    | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|---------|---------|--------|--------|--------|--------|
| 324.000  | -5.000 | -.05760 | -.01170 | -.00100 | .00290  | -.00080 | .00920 | .00000 | .00000 | .00000 |
| 324.000  | -2.000 | -.00800 | -.00860 | .00390  | .00210  | -.00090 | .00230 | .00000 | .00000 | .00000 |
| 324.000  | .000   | .00460  | .00200  | .00050  | .00280  | -.00110 | .00980 | .00000 | .00000 | .00000 |
| 324.000  | 2.000  | .02650  | .00750  | .00030  | .00240  | -.00020 | .00910 | .00000 | .00000 | .00000 |
| 324.000  | 5.000  | .06910  | .01440  | .00050  | .00160  | -.00070 | .00820 | .00000 | .00000 | .00000 |
| GRADIENT |        | .01209  | .00281  | .00001  | -.00010 | .00003  | .00016 | .00000 | .00000 | .00000 |

RUN NO. 2033/ 0 RN/L = 4.97 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN    | CBL     | CAF    | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|--------|---------|--------|--------|--------|--------|
| 648.000  | -5.000 | -.05180 | -.01370 | -.00110 | .00200 | -.00030 | .00850 | .00000 | .00000 | .00000 |
| 648.000  | -2.000 | -.02720 | -.00270 | .00380  | .00260 | -.00020 | .00140 | .00000 | .00000 | .00000 |
| 648.000  | .000   | .00620  | .00300  | .00300  | .00160 | -.00090 | .00930 | .00000 | .00000 | .00000 |
| 648.000  | 2.000  | .02640  | .00670  | -.00370 | .00250 | -.00080 | .00880 | .00000 | .00000 | .00000 |
| 648.000  | 5.000  | .07100  | .01480  | -.00880 | .00290 | -.00130 | .00810 | .00000 | .00000 | .00000 |
| GRADIENT |        | .01243  | .00278  | -.00090 | .00007 | .00007  | .00008 | .00000 | .00000 | .00000 |

RUN NO. 2034/ 0 RN/L = 4.97 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN     | CBL     | CAF    | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|---------|---------|--------|--------|--------|--------|
| 972.000  | -5.000 | -.05410 | -.01470 | -.00080 | .00310  | -.00120 | .00110 | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | -.02110 | -.00600 | -.00070 | .00220  | -.00090 | .00050 | .00000 | .00000 | .00000 |
| 972.000  | .000   | .01380  | .00100  | .00180  | .00290  | -.00140 | .00200 | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | .03150  | .00820  | .00250  | .00210  | -.00020 | .00930 | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | .06640  | .01660  | -.00330 | .00210  | -.00140 | .00160 | .00000 | .00000 | .00000 |
| GRADIENT |        | .01219  | .00319  | .00056  | -.00009 | -.00006 | .00004 | .00000 | .00000 | .00000 |

(R05T11) ( 04 OCT 73 )

MS71 (IAGS) TANK (T9) SEPARATING FROM ORBITER (O13)

REFERENCE DATA

SREF = 2697.0000 SQ.FT. XMRP = 929.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

PARAMETRIC DATA

BETA = .000 MACH = 4.960  
 ELEVTR = .000 AIRLON = .000  
 RUDDER = .000 RUDFLR = 40.000  
 DELTAA = 5.000 DELTAB = .000  
 DELTAY = .000 DELTAZ = 810.000

RUN NO. 2015/ 0 RN/L = 4.90 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA   | CN     | CLM    | CY     | CYN    | CBL    | CAF    | CABO   | CABT   | CABS   |
|----------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| .000     | -1.2770 | .00610 | .00270 | .00020 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 |
| .000     | -.09140 | .00000 | .00370 | .00010 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 |
| .000     | -.05950 | .00490 | .00230 | .00180 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 |
| .000     | -.03190 | .00710 | .00410 | .00160 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 |
| .000     | .00820  | .00160 | .00240 | .00140 | .00020 | .00000 | .00000 | .00000 | .00000 | .00000 |
| GRADIENT | .01377  | .00249 | .00018 | .00016 | .00004 | .00000 | .00000 | .00000 | .00000 | .00000 |

RUN NO. 2016/ 0 RN/L = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA   | CN     | CLM    | CY     | CYN    | CBL    | CAF    | CABO   | CABT   | CABS   |
|----------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 324.000  | -.12290 | .00110 | .00340 | .00030 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 |
| 324.000  | -.07560 | .00050 | .00250 | .00030 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 |
| 324.000  | -.05420 | .00010 | .00340 | .00030 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 |
| 324.000  | -.02540 | .00090 | .00290 | .00010 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 |
| 324.000  | .01200  | .00370 | .00260 | .00080 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 |
| GRADIENT | .01336  | .00250 | .00031 | .00007 | .00004 | .00000 | .00000 | .00000 | .00000 | .00000 |

RUN NO. 2017/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA   | CN     | CLM    | CY     | CYN    | CBL    | CAF    | CABO   | CABT   | CABS   |
|----------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 648.000  | -.12080 | .00100 | .00120 | .00140 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 |
| 648.000  | -.08240 | .00140 | .00120 | .00200 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 |
| 648.000  | -.05090 | .00500 | .00160 | .00020 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 |
| 648.000  | -.02790 | .00270 | .00210 | .00080 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 |
| 648.000  | .00630  | .00120 | .00170 | .00190 | .00050 | .00000 | .00000 | .00000 | .00000 | .00000 |
| GRADIENT | .01301  | .00247 | .00011 | .00009 | .00012 | .00000 | .00000 | .00000 | .00000 | .00000 |

RUN NO. 2018/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA   | CN     | CLM    | CY     | CYN    | CBL    | CAF    | CABO   | CABT   | CABS   |
|----------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 972.000  | -.13140 | .00190 | .00280 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 |
| 972.000  | -.08490 | .00180 | .00210 | .00200 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 |
| 972.000  | -.05310 | .00150 | .00280 | .00030 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 |
| 972.000  | -.02760 | .00370 | .00180 | .00090 | .00000 | .00000 | .00000 | .00000 | .00000 | .00000 |
| 972.000  | .01010  | .00070 | .00430 | .00210 | .00120 | .00000 | .00000 | .00000 | .00000 | .00000 |
| GRADIENT | .01417  | .00206 | .00039 | .00007 | .00007 | .00000 | .00000 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, MSFC 571, (IASA)

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MS71 (IASA) TANK (79) SEPARATING FROM ORBITER (003)  
(R03112) ( 94 OCT 73 )

## REFERENCE DATA

SEEF = 2690.0000 SA.FT. XMRP = 929.0000 IN.  
LREF = 1328.3000 IN. YMRP = .0000 IN.  
BREF = 1328.3000 IN. ZMRP = .0000 IN.  
SCALE = .0040

## PARAMETRIC DATA

BETA = .000 MACH = 4.960  
ELEVTR = .000 AILEON = .000  
RUDDER = .000 RUDDFL = 40.000  
DELTA = 10.000 DELTA9 = .000  
DELTA2 = .000 DELTAZ = 810.000  
DELTA4 = .000

RUN NO. 2086/ 0 RV/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN     | CLM    | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|--------|--------|---------|---------|---------|---------|--------|--------|--------|
| .000     | -5.000 | -20070 | -03280 | .01800  | -.00530 | -.00280 | .08470  | .00000 | .00000 | .00000 |
| .000     | -2.000 | -15170 | -02900 | .01030  | -.00330 | .00000  | .08440  | .00000 | .00000 | .00000 |
| .000     | .000   | -11680 | -02430 | .01580  | -.00510 | -.00100 | .08200  | .00000 | .00000 | .00000 |
| .000     | 2.000  | -08870 | -02000 | .01680  | -.00730 | -.00010 | .08240  | .00000 | .00000 | .00000 |
| .000     | 5.000  | -05350 | -01260 | .01230  | -.00590 | .00010  | .08230  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01486 | .00205 | -.00027 | -.00018 | .00025  | -.00026 | .00000 | .00000 | .00000 |

RUN NO. 2087/ 0 RV/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN     | CLM    | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|--------|--------|---------|---------|---------|---------|--------|--------|--------|
| 324.000  | -5.000 | -21240 | -03260 | .01460  | -.00550 | -.00140 | .08740  | .00000 | .00000 | .00000 |
| 324.000  | -2.000 | -15910 | -02960 | .01390  | -.00580 | .00040  | .08740  | .00000 | .00000 | .00000 |
| 324.000  | .000   | -12410 | -02400 | .01820  | -.00650 | .00000  | .08430  | .00000 | .00000 | .00000 |
| 324.000  | 2.000  | -09660 | -01970 | .01360  | -.00590 | -.00140 | .08480  | .00000 | .00000 | .00000 |
| 324.000  | 5.000  | -05520 | -01250 | .01370  | -.00510 | -.00070 | .08510  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01571 | .00207 | -.00009 | .00003  | -.00000 | -.00029 | .00000 | .00000 | .00000 |

RUN NO. 2090/ 0 RV/L = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN     | CLM    | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|--------|--------|---------|---------|---------|---------|--------|--------|--------|
| 648.000  | -5.000 | -21650 | -02680 | .02120  | -.00530 | -.00010 | .08410  | .00000 | .00000 | .00000 |
| 648.000  | -2.000 | -16310 | -02960 | .01270  | -.00350 | .00000  | .08530  | .00000 | .00000 | .00000 |
| 648.000  | .000   | -12880 | -02520 | .01250  | -.00340 | -.00150 | .08700  | .00000 | .00000 | .00000 |
| 648.000  | 2.000  | -09420 | -02130 | .01430  | -.00400 | -.00020 | .08570  | .00000 | .00000 | .00000 |
| 648.000  | 5.000  | -05390 | -01220 | .01490  | -.00460 | .00010  | .08200  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01639 | .00154 | -.00049 | .00004  | .00001  | -.00017 | .00000 | .00000 | .00000 |

RUN NO. 2091/ 0 RV/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN     | CLM    | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|--------|--------|---------|---------|---------|---------|--------|--------|--------|
| 972.000  | -5.000 | -21870 | -02760 | .01900  | -.00580 | -.00170 | .08670  | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | -17090 | -02820 | .01440  | -.00580 | -.00100 | .08600  | .00000 | .00000 | .00000 |
| 972.000  | .000   | -12830 | -02690 | .01630  | -.00710 | -.00180 | .08390  | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | -10710 | -02090 | .01660  | -.00640 | -.00110 | .08260  | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | -06470 | -01510 | .01350  | -.00570 | -.00100 | .08320  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01548 | .00133 | -.00040 | -.00001 | .00006  | -.00042 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, MSFC 571, (IA6A)

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MS71 (IA6A) TANK (T9) SEPARATING FROM ORBITER (013)

(R85113) ( 04 OCT 73 )

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XREF = 929.0000 IN.  
LREF = 1328.3000 IN. YREF = .0000 IN.  
BREF = 1228.3000 IN. ZREF = .0000 IN.  
SCALE = .0040

PARAMETRIC DATA

BETA = .000 MACH = 4.960  
ELEVTR = 10.000 AIRCON = .000  
RUDDER = .000 RUDDFLR = 40.000  
DELTAA = .000 DELTAB = .000  
DELTAY = .000 DELTAZ = .000

RUN NO. 2052/ 0 RV/L = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTAX | ALPHA    | CN      | CLM     | CY     | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|--------|----------|---------|---------|--------|--------|---------|---------|--------|--------|--------|
| .000   | -5.000   | -.08820 | -.02010 | .00180 | .00120 | -.00290 | .08430  | .00000 | .00000 | .00000 |
| .000   | -2.000   | -.04800 | -.00920 | .00740 | .00100 | -.00020 | .08630  | .00000 | .00000 | .00000 |
| .000   | .000     | -.02860 | -.00290 | .00630 | .00130 | -.00090 | .08710  | .00000 | .00000 | .00000 |
| .000   | 2.000    | -.00310 | .00440  | .00240 | .00150 | -.00090 | .08420  | .00000 | .00000 | .00000 |
| .000   | 5.000    | .03000  | .01700  | .00580 | .00160 | -.00030 | .08470  | .00000 | .00000 | .00000 |
|        | GRADIENT | .01174  | .00367  | .00017 | .00005 | .00020  | -.00004 | .00000 | .00000 | .00000 |

RUN NO. 2047/ 0 RV/L = 4.96 GRADIENT INTERVAL = -5.00/ 5.00

| DELTAX  | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF    | CABO   | CABT   | CABS   |
|---------|----------|---------|---------|---------|--------|---------|--------|--------|--------|--------|
| 972.000 | -5.000   | -.07410 | -.02870 | -.00730 | .00250 | -.00190 | .10420 | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.05340 | -.03100 | .00690  | .00190 | -.00030 | .09860 | .00000 | .00000 | .00000 |
| 972.000 | .000     | -.04500 | -.03170 | .00800  | .00180 | -.00020 | .10410 | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | -.03960 | -.03180 | .00470  | .00220 | .00000  | .10670 | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | -.00690 | -.02560 | .00450  | .00290 | .00000  | .10220 | .00000 | .00000 | .00000 |
|         | GRADIENT | .00627  | .00027  | .00034  | .00004 | .00017  | .00011 | .00000 | .00000 | .00000 |



M571 (1A6A) TANK (T9) SEPARATING FROM ORBITER (013)

REFERENCE DATA  
SREF = 2690.0000 SQ.FT. XMRP = 929.0000 IN.  
LREF = 1328.0000 IN. YMRP = .0000 IN.  
BREF = 1328.0000 IN. ZMRP = .0000 IN.  
SCALE = .0040

PARAMETRIC DATA  
BETA = .000 WACH = 4.960  
ELEVTR = 10.000 AILSON = .000  
RUDDER = .000 RUDELR = 40.000  
DELTA = .000 DELTAB = .000  
DELTAZ = 162.000  
DELTAZ = 162.000

RUN NO. 2051/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| .000     | -5.000 | -.08820 | -.01020 | .00910  | .00210  | .00000  | .08540  | .00000 | .00000 | .00000 |
| .000     | -2.000 | -.04820 | -.00160 | .00310  | .01190  | .00000  | .08840  | .00000 | .00000 | .00000 |
| .000     | .000   | -.02850 | .00420  | .02360  | -.00110 | -.00060 | .08490  | .00000 | .00000 | .00000 |
| .000     | 2.000  | -.00330 | .01290  | .00890  | .00100  | -.00100 | .08560  | .00000 | .00000 | .00000 |
| .000     | 5.000  | .03500  | .02000  | -.00570 | .00270  | -.00140 | .08640  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01217  | .00310  | -.00108 | .00002  | -.00016 | -.00001 | .00000 | .00000 | .00000 |

RUN NO. 2048/ 0 RN/L = 4.96 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| 972.000  | -5.000 | -.08220 | -.02730 | .00500  | .00190  | .00040  | .09450  | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | -.06630 | -.01250 | -.00020 | .00230  | -.00170 | .08770  | .00000 | .00000 | .00000 |
| 972.000  | .000   | -.04430 | -.00450 | .00090  | .00210  | -.00040 | .08710  | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | -.02480 | .00840  | .00500  | .00170  | .00000  | .08830  | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | .00460  | .02410  | .00360  | .00100  | -.00120 | .08670  | .00000 | .00000 | .00000 |
| GRADIENT |        | .00891  | .00315  | .00006  | -.00010 | -.00008 | -.00065 | .00000 | .00000 | .00000 |

(R05T15) ( 24 OCT 73 )

M571 (IA6A) TANK (T9) SEPARATING FROM ORBITER (O13)

## REFERENCE DATA

STEP = 2695.0000 SQ.FT. XMRP = 929.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 SREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 WICH = 4.960  
 ELEVTR = 10.000 AILSON = .000  
 FLIPER = 0 FLUPLE = 40.000  
 DELTAA = 5.000 DELTAB = .000  
 DELTAY = .000 DELTAZ = 162.000

RUN NO. 2076/ 0 RM/L = 4.98 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA   | CN      | CLM     | CY      | CYN     | CBL     | CAF     | CASO   | CABT   | CABS   |
|----------|---------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| .000     | -1.5980 | .01980  | -.01640 | .01980  | -.00480 | -.00110 | .08630  | .00000 | .00000 | .00000 |
| .000     | -2.0000 | .01300  | -.01090 | .01300  | -.00310 | .00000  | .08670  | .00000 | .00000 | .00000 |
| .000     | .0000   | -.09220 | -.00370 | .02230  | -.00590 | -.00100 | .08400  | .00000 | .00000 | .00000 |
| .000     | 2.0000  | -.06490 | .00120  | .01760  | -.00450 | -.00090 | .08400  | .00000 | .00000 | .00000 |
| .000     | 5.0000  | -.03610 | .01290  | .01620  | -.00420 | -.00090 | .08400  | .00000 | .00000 | .00000 |
| GRADIENT | .01267  | .00294  | .00294  | -.00018 | .00000  | -.00001 | -.00029 | .00000 | .00000 | .00000 |

RUN NO. 2073/ 0 RM/L = 5.00 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA   | CN      | CLM     | CY      | CYN     | CBL     | CAF     | CASO   | CABT   | CABS   |
|----------|---------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| 972.000  | -5.0000 | -.15140 | -.04200 | .01760  | -.00430 | -.00130 | .09060  | .00000 | .00000 | .00000 |
| 972.000  | -2.0000 | -.12520 | -.02950 | .02010  | -.00590 | .00000  | .08690  | .00000 | .00000 | .00000 |
| 972.000  | .0000   | -.10590 | -.02150 | .01660  | -.00540 | -.00160 | .08570  | .00000 | .00000 | .00000 |
| 972.000  | 2.0000  | -.09120 | -.01100 | .01670  | -.00480 | -.00030 | .08600  | .00000 | .00000 | .00000 |
| 972.000  | 5.0000  | -.05660 | .00200  | .01780  | -.00310 | -.00070 | .08540  | .00000 | .00000 | .00000 |
| GRADIENT | .00934  | .00443  | .00443  | -.00010 | .00014  | .00004  | -.00048 | .00000 | .00000 | .00000 |

TABULATED SOURCE DATA, MSFC 571, (IAGA)

DATE 27 OCT 73

(R85T16) ( 04 OCT 73 )

M571 (IAGA) TANK (T9) SEPARATING FROM ORBITER (013)

PARAMETRIC DATA

BETA = .000 MACH = 4.960  
ELEVTR = 10.000 AILRON = .000  
RUDDER = .000 RUDDLR = 40.000  
DELTA = .000 DELTAB = .000  
DELTAY = .000 DELTAZ = 486.000

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMSF = 929.0000 IN.  
LREF = 1328.3000 IN. YMSF = .0000 IN.  
BREF = 1328.3000 IN. ZMSF = .0000 IN.  
SCALE = .0040

RUN NO. 2050/ 0 RV/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF    | CABO   | CABT   | CABS   |
|-------|----------|---------|---------|---------|--------|---------|--------|--------|--------|--------|
| .000  | -5.000   | -.05560 | -.01570 | .00120  | .00250 | -.00110 | .08460 | .00000 | .00000 | .00000 |
| .000  | -2.000   | -.03410 | -.00670 | .00710  | .00110 | -.00120 | .08500 | .00000 | .00000 | .00000 |
| .000  | .000     | -.00140 | -.00200 | -.00430 | .00290 | -.00020 | .08240 | .00000 | .00000 | .00000 |
| .000  | 2.000    | .02730  | .00620  | .00190  | .00240 | -.00120 | .08340 | .00000 | .00000 | .00000 |
| .000  | 5.000    | .06030  | .01560  | .00340  | .00210 | -.00060 | .08620 | .00000 | .00000 | .00000 |
| .000  | GRADIENT | .01211  | .00314  | .00018  | .00001 | .00004  | .00008 | .00000 | .00000 | .00000 |

RUN NO. 2049/ 0 RV/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY     | CYN    | CBL     | CAF    | CABO   | CABT   | CABS   |
|---------|----------|---------|---------|--------|--------|---------|--------|--------|--------|--------|
| 972.000 | -5.000   | -.07860 | -.01420 | .00030 | .00140 | -.00150 | .08170 | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.03270 | -.00550 | .00600 | .00120 | .00040  | .08410 | .00000 | .00000 | .00000 |
| 972.000 | .000     | -.01770 | .00600  | .00220 | .00190 | -.00140 | .08340 | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | .01710  | .00810  | .00320 | .00190 | -.00040 | .08380 | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .05680  | .01410  | .00680 | .00150 | .00010  | .08560 | .00000 | .00000 | .00000 |
| 972.000 | GRADIENT | .01339  | .00291  | .00053 | .00003 | .00011  | .00033 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, MSFC 571, (IA6A)

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MS71 (IA6A) TANK (T9) SEPARATING FROM ORBITER (O13) (R85T17) ( 54 OCT 73 )

## REFERENCE DATA

SRFP = 2695.0000 SQ.FT. XMRP = 929.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BRFP = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 WACH = 4.560  
 ELEVTR = 10.000 AIRLON = .000  
 RUDDER = .000 RUOFLR = 40.000  
 DELTAA = 5.000 DELTAB = .000  
 DELTAY = .000 DELTAZ = 486.000

RUN NO. 2075/ 0 RN/L = 4.99 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY     | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|-------|----------|---------|---------|--------|---------|---------|---------|--------|--------|--------|
| .000  | -5.000   | -.12120 | -.02530 | .01280 | -.00300 | -.00210 | .08620  | .00000 | .00000 | .00000 |
| .000  | -2.000   | -.08840 | -.02000 | .01460 | -.00470 | -.00140 | .08210  | .00000 | .00000 | .00000 |
| .000  | .000     | -.05790 | -.02280 | .01680 | -.00510 | -.00140 | .08200  | .00000 | .00000 | .00000 |
| .000  | 2.000    | -.03110 | -.00830 | .01510 | -.00400 | -.00030 | .08190  | .00000 | .00000 | .00000 |
| .000  | 5.000    | .00650  | .00160  | .01490 | -.00410 | -.00080 | .08170  | .00000 | .00000 | .00000 |
|       | GRADIENT | .01298  | .00272  | .00020 | -.00007 | .00015  | -.00039 | .00000 | .00000 | .00000 |

RUN NO. 2074/ 0 RN/L = 4.99 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|---------|----------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| 972.000 | -5.000   | -.14110 | -.02460 | .01920  | -.00610 | -.00160 | .08450  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.09950 | -.01460 | .01430  | -.00440 | -.00090 | .08340  | .00000 | .00000 | .00000 |
| 972.000 | .000     | -.07270 | -.00940 | .01670  | -.00440 | -.00020 | .08290  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | -.04290 | -.00450 | .01530  | -.00190 | -.00110 | .08390  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | -.00400 | .00440  | .01190  | -.00230 | -.00040 | .08410  | .00000 | .00000 | .00000 |
|         | GRADIENT | .01377  | .00287  | -.00062 | .00043  | .00010  | -.00002 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, MSC 571, (IA6A)

(585118) ( 04 OCT 73 )

M571 (IA6A) TANK (T9) SEPARATING FROM ORBITER (013)

PARAMETRIC DATA

BETA = .000 MACH = 4.987  
ELEVTR = -20.000 AILEON = .000  
RUDDER = .000 RUDPLR = 40.000  
DELTA = .000 DELTAE = .000  
DELTAY = .000 DELTAZ = .000

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XREF = 929.0000 IN.  
LREF = 1328.3000 IN. YREF = .0000 IN.  
BREF = 1328.3000 IN. ZREF = .0000 IN.  
SCALE = .0040

RUN NO. 2053/ 0 RN/L = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY     | CYN     | CBL     | CAF    | CABO   | CABT   | CABS   |
|-------|----------|---------|---------|--------|---------|---------|--------|--------|--------|--------|
| .000  | -5.000   | -.07840 | -.02040 | .00200 | .00150  | -.00130 | .08220 | .00000 | .00000 | .00000 |
| .000  | -2.000   | -.04700 | -.00840 | .00750 | .00170  | -.00140 | .08490 | .00000 | .00000 | .00000 |
| .000  | .000     | -.02940 | -.00140 | .00580 | .00060  | -.00090 | .08350 | .00000 | .00000 | .00000 |
| .000  | 2.000    | .00360  | .00770  | .00750 | .00060  | -.00100 | .08410 | .00000 | .00000 | .00000 |
| .000  | 5.000    | .03320  | .01890  | .00540 | .00120  | -.00090 | .08410 | .00000 | .00000 | .00000 |
| .000  | GRADIENT | .01137  | .00394  | .00030 | -.00006 | .00705  | .00014 | .00000 | .00000 | .00000 |

RUN NO. 2058/ 0 RN/L = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY     | CYN    | CBL     | CAF    | CABO   | CABT   | CABS   |
|---------|----------|---------|---------|--------|--------|---------|--------|--------|--------|--------|
| 972.000 | -5.000   | -.06370 | -.02760 | .00500 | .00200 | -.00130 | .09980 | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.05250 | -.03160 | .00590 | .00250 | -.00010 | .10740 | .00000 | .00000 | .00000 |
| 972.000 | .000     | -.04630 | -.03340 | .00370 | .00290 | .00000  | .10630 | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | -.03030 | -.03180 | .00650 | .00290 | .00000  | .10610 | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .00200  | -.02660 | .00960 | .00200 | -.00180 | .10110 | .00000 | .00000 | .00000 |
| 972.000 | GRADIENT | .00643  | .00008  | .00042 | .00001 | .00005  | .00007 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, NSFC 571, .1A6A

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M571 (1A6A) TANK (T9) SEPARATING FROM ORBITER (013) (R85719) ( 04 OCT 73 )

## REFERENCE DATA

SREF = 2692.0000 SQ.FT. XMRP = 929.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 WACH = 4.880  
 ELEVR = -20.000 ATLSN = .000  
 RUDDR = .000 RUFLR = 40.000  
 DELTAA = .000 DELTAB = .000  
 DELTAY = .000 DELTAZ = 162.000

RUN NO. 2054/ 0 RVL = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA X | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|---------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000    | -5.000   | -.58860 | -.01230 | -.00060 | .00130 | -.00120 | .08360  | .00000 | .00000 | .00000 |
| .000    | -2.000   | -.04820 | -.00210 | .00160  | .00150 | -.00030 | .08360  | .00000 | .00000 | .00000 |
| .000    | .000     | -.02970 | .00600  | .00150  | .00150 | -.00080 | .08210  | .00000 | .00000 | .00000 |
| .000    | 2.000    | .00290  | .01140  | .00540  | .00170 | -.00150 | .08380  | .00000 | .00000 | .00000 |
| .000    | 5.000    | .04130  | .01970  | .00250  | .00220 | -.00250 | .08330  | .00000 | .00000 | .00000 |
|         | GRADIENT | .01296  | .00322  | .00040  | .00008 | -.00010 | -.00002 | .00000 | .00000 | .00000 |

RUN NO. 2057/ 0 RVL = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA X | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|---------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| 972.000 | -5.000   | -.09190 | -.03530 | -.00010 | .00210 | -.00110 | .08380  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.05270 | -.00420 | .00150  | .00210 | -.00110 | .08470  | .00000 | .00000 | .00000 |
| 972.000 | .000     | -.02750 | -.00470 | .00620  | .00120 | -.00100 | .08720  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | -.02180 | .00510  | -.00530 | .00350 | -.00010 | .08480  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .00500  | .01940  | -.00270 | .00400 | -.00030 | .08460  | .00000 | .00000 | .00000 |
|         | GRADIENT | .00968  | .00504  | -.00038 | .00021 | .00010  | -.00079 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, NSFC 371, (1A6A)

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W571 (1A6A) TASK (T9) SEPARATING FROM ORBITER (013)

(R85720) (24 OCT 73)

REFERENCE DATA

STEP = 2690.0000 SQ.FT. XREF = 929.0000 IN.  
 LEF = 120.3000 IN. YREF = .0000 IN.  
 BREF = 122.3000 IN. ZREF = .0000 IN.  
 SCALE = .0040

PARAMETRIC DATA

BETA = .000 MICR = 4.950  
 ELEVR = -27.000 ATLEON = .000  
 RUDDR = .000 RUDELR = 40.000  
 DELTAA = 5.000 DELTAR = .000  
 DELTAY = .000 DELTAZ = 162.000

RUN NO. 2080/ 0 RN/L = 4.96 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA   | CN      | CLM     | CY      | CYN     | CBL     | CAF    | CABO   | CABT   | CABS   |
|-------|---------|---------|---------|---------|---------|---------|--------|--------|--------|--------|
| .000  | -1.6820 | .01520  | .02170  | -.00580 | -.00130 | .09440  | .00000 | .00000 | .00000 | .00000 |
| .000  | -.12660 | -.01010 | .01240  | -.00400 | -.00000 | .08490  | .00000 | .00000 | .00000 | .00000 |
| .000  | -.03980 | -.00430 | .01590  | -.00410 | .00000  | .09350  | .00000 | .00000 | .00000 | .00000 |
| .000  | -.06910 | .00170  | .01840  | -.00490 | -.00010 | .08280  | .00000 | .00000 | .00000 | .00000 |
| .000  | -.02970 | .01370  | .01910  | -.00450 | -.00140 | .08430  | .00000 | .00000 | .00000 | .00000 |
|       | .01392  | .00290  | -.00002 | .00008  | -.00001 | -.00003 | .00000 | .00000 | .00000 | .00000 |

RUN NO. 2077/ 0 RN/L = 4.98 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA   | CN      | CLM    | CY      | CYN     | CBL     | CAF    | CABO   | CABT   | CABS   |
|---------|---------|---------|--------|---------|---------|---------|--------|--------|--------|--------|
| 972.000 | -.14990 | -.04320 | .01070 | -.00420 | -.00140 | .09310  | .00000 | .00000 | .00000 | .00000 |
| 972.000 | -.10970 | -.03250 | .02200 | -.00680 | -.00430 | .08750  | .00000 | .00000 | .00000 | .00000 |
| 972.000 | -.09420 | -.02400 | .01870 | -.00550 | -.00140 | .09630  | .00000 | .00000 | .00000 | .00000 |
| 972.000 | -.07200 | -.01560 | .02030 | -.00480 | -.00120 | .09560  | .00000 | .00000 | .00000 | .00000 |
| 972.000 | -.05070 | -.00210 | .01610 | -.00390 | -.00000 | .09590  | .00000 | .00000 | .00000 | .00000 |
|         | .00995  | .02413  | .00041 | .00009  | .00010  | -.00769 | .00000 | .00000 | .00000 | .00000 |

TABULATED SOURCE DATA, MSFC 571, (1A6A)

DATE 27 OCT 73

185812:1 04 OCT 73

M371 (1A6A) TANK (T9) SEPARATING FROM ORBITER (013)

PARAMETRIC DATA

REFERENCE DATA

SREF = 2590.0000 SA.FT. XMRP = 929.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 PREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040  
 BETA = .000 WICH = 4.950  
 ELEV2 = -20.000 ALT20M = .000  
 RUDER = .000 RUDLE = 40.000  
 DELTAA = .000 DELTAS = .000  
 DELTAY = .000 DELTAZ = 486.000

RUN NO. 2055/ 0 RVAL = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY      | CYN    | CEL     | CAF     | CABO   | CABT   | CASS   |
|-------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000  | -5.000   | -.05980 | -.01580 | .00360  | .00140 | -.00190 | .02660  | .00000 | .00000 | .00000 |
| .000  | -2.000   | -.02530 | -.00610 | .00470  | .00100 | -.00090 | .02110  | .00000 | .00000 | .00000 |
| .000  | .000     | -.00330 | -.00130 | .00050  | .00170 | -.00100 | .02210  | .00000 | .00000 | .00000 |
| .000  | 2.000    | .02620  | .00490  | .00160  | .00160 | -.00090 | .02350  | .00000 | .00000 | .00000 |
| .000  | 5.000    | .06360  | .01100  | .00110  | .00180 | -.00120 | .02430  | .00000 | .00000 | .00000 |
| .000  | GRADIENT | .01239  | .00269  | -.00049 | .00006 | .00006  | -.00012 | .00000 | .00000 | .00000 |

RUN NO. 2056/ 0 RVAL = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN     | CEL     | CAF     | CABO   | CABT   | CASS   |
|---------|----------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| 972.000 | -5.000   | -.06370 | -.01170 | .01020  | .00080  | .00010  | .02580  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.04160 | -.00510 | -.00750 | .00250  | -.00130 | .02200  | .00000 | .00000 | .00000 |
| 972.000 | .000     | -.00790 | -.00080 | .00070  | .00170  | -.00070 | .02480  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | .01270  | .00690  | .00050  | .00140  | -.00010 | .02210  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .05710  | .01450  | .00130  | .00110  | -.00030 | .02420  | .00000 | .00000 | .00000 |
| .000    | GRADIENT | .01229  | .00267  | -.00049 | -.00001 | -.00009 | -.00015 | .00000 | .00000 | .00000 |

DATE 27 OCT 72

W571 (1A6A) TANK (T9) SEPARATING FROM ORBITER (013)

W571 (1A6A) TANK (T9) SEPARATING FROM ORBITER (013)

PARAMETRIC DATA

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 929.0000 IN. BETA = .000 WACH = 4.950  
 LREF = 1328.3000 IN. YMRP = .0000 IN. ELEVTE = -20.0000 ATLEON = .000  
 BREF = 1328.3000 IN. ZMRP = .0000 IN. RUDDER = .000 RUDDLE = 40.000  
 SCALE = .0040 DELTAA = 5.000 DELTAS = .000  
 DELTAY = .000 DELTAX = 486.000

RUN NO. 2079/ 0 RNVL = 4.96 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY      | CYN     | CEL     | CAF     | CASO   | CASB   | CABS   |
|-------|----------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| .000  | -5.000   | -.12590 | -.02390 | .01660  | -.00390 | -.00060 | .00270  | .00000 | .00000 | .00000 |
| .000  | -2.000   | -.08380 | -.01950 | .02730  | -.00690 | -.00170 | .02220  | .00000 | .00000 | .00000 |
| .000  | .000     | -.05770 | -.01430 | .01200  | -.00180 | -.00020 | .08400  | .00000 | .00000 | .00000 |
| .000  | 2.000    | -.02960 | -.01250 | .01440  | -.00310 | -.00010 | .08380  | .00000 | .00000 | .00000 |
| .000  | 5.000    | -.02130 | .00490  | .01540  | -.00410 | -.00100 | .08190  | .00000 | .00000 | .00000 |
|       | GRADIENT | .01009  | .00274  | -.00055 | .00011  | .00002  | -.00001 | .00000 | .00000 | .00000 |

RUN NO. 2078/ 0 RNVL = 4.97 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN     | CEL     | CAF     | CASO   | CASB   | CABS   |
|---------|----------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| 972.000 | -5.000   | -.14210 | -.02560 | .01440  | -.00470 | -.00100 | .08360  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.09540 | -.01500 | .01690  | -.00440 | -.00120 | .09260  | .00000 | .00000 | .00000 |
| 972.000 | .000     | -.07240 | -.01120 | .01510  | -.00230 | .00000  | .08310  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | -.04620 | -.00540 | .01150  | -.00150 | -.00150 | .08250  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | -.05470 | .00350  | .01240  | -.00120 | -.00060 | .08240  | .00000 | .00000 | .00000 |
|         | GRADIENT | .01354  | .00284  | -.00036 | .00023  | .00002  | -.00007 | .00000 | .00000 | .00000 |

TABULATED SOURCE DATA, MSFC 571, (1A6A)

DATE 27 OCT 73

102723 174 OCT 73

MS71 (1A6A) TANK (T9) SEPARATING FROM ORBITER (C12)

REFERENCE DATA  
SREF = 2659.0000 S3.FT. XMRP = 929.0000 IN.  
LREF = 1328.3000 IN. YMRP = .0000 IN.  
BREF = 1328.3000 IN. ZMRP = .0000 IN.  
SCALE = .0040

PARAMETRIC DATA

BETA = .000 MCM = 4.360  
ELEVTR = -40.000 ELEVON = .000  
FOOER = .000 FOOER = 40.000  
DELTA = .000 DELTA = .000  
DELTA = .000 DELTA = .000

RUN NO. 2064/ 0 RN/L = 4.90 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY     | CYN     | CBL     | CAF     | C450   | C45T   | C45S   |
|-------|----------|---------|---------|--------|---------|---------|---------|--------|--------|--------|
| .000  | -5.000   | -.08110 | -.01870 | .00140 | .00300  | -.00020 | .09410  | .00000 | .00000 | .00000 |
| .000  | -2.000   | -.05140 | -.01120 | .00210 | .00240  | .00000  | .08290  | .00000 | .00000 | .00000 |
| .000  | .000     | -.02990 | -.00400 | .00010 | .00280  | -.00170 | .08460  | .00000 | .00000 | .00000 |
| .000  | 2.000    | .00380  | .00420  | .00160 | .00180  | .00010  | .08260  | .00000 | .00000 | .00000 |
| .000  | 5.000    | .00330  | .01560  | .00310 | .00170  | -.00030 | .08290  | .00000 | .00000 | .00000 |
|       | GRADIENT | .01177  | .00349  | .00013 | -.00013 | -.00069 | -.00011 | .00000 | .00000 | .00000 |

RUN NO. 2059/ 0 RN/L = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY      | CYN     | CBL     | CAF    | C450   | C45T   | C45S   |
|---------|----------|---------|---------|---------|---------|---------|--------|--------|--------|--------|
| 972.000 | -5.000   | -.06320 | -.02900 | -.00440 | .00280  | -.00060 | .09730 | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.05280 | -.03160 | .00940  | .00240  | -.00160 | .10550 | .00000 | .00000 | .00000 |
| 972.000 | .000     | -.04280 | -.03410 | .00260  | .00310  | -.00050 | .10470 | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | -.02850 | -.03050 | .00790  | .00360  | -.00010 | .10480 | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | -.00320 | -.02480 | .00850  | .00210  | -.00110 | .10010 | .00000 | .00000 | .00000 |
|         | GRADIENT | .00601  | .00040  | .00106  | -.00005 | .00001  | .00022 | .00000 | .00000 | .00000 |

TABULATED SOURCE DATA, MSFC 571, (1A6A)

DATE 27 OCT 73

(R85724) ( 04 OCT 73 )

M571 (1A6A) TANK (T9) SEPARATING FROM ORBITER (013)

PARAMETRIC DATA

REFERENCE DATA

SREF = 2690.0000 53.FT. XREF = 929.0000 IN.  
 LREF = 1328.3000 IN. YREF = .0000 IN.  
 BREF = 1328.3000 IN. ZREF = .0000 IN.  
 SCALE = .0040

BETA = .000 MACH = 4.960  
 ELEVTR = -40.000 AILRON = .000  
 RUDDER = .000 RUDPLR = 40.000  
 DELTAA = .000 DELTAS = .000  
 DELTAY = .000 DELTAZ = 162.000

RUN NO. 2063/ 0 RV/L = 4.90 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA X | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|---------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000    | -5.000   | -.08270 | -.01110 | .00650  | .00090 | .00160  | .08430  | .00000 | .00000 | .00000 |
| .000    | -2.000   | -.04830 | -.00160 | .00220  | .00240 | -.00330 | .08640  | .00000 | .00000 | .00000 |
| .000    | .000     | -.02620 | .00390  | -.00010 | .00190 | -.00150 | .08340  | .00000 | .00000 | .00000 |
| .000    | 2.000    | .00390  | .01010  | .00510  | .00180 | -.00030 | .08540  | .00000 | .00000 | .00000 |
| .000    | 5.000    | .03800  | .02010  | .00290  | .00190 | .00000  | .08420  | .00000 | .00000 | .00000 |
|         | GRADIENT | .01221  | .00309  | -.00021 | .00007 | -.00003 | -.00006 | .00000 | .00000 | .00000 |

RUN NO. 2063/ 0 RV/L = 4.90 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA X | ALPHA    | CN      | CLM     | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|---------|----------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| 972.000 | -5.000   | -.07730 | -.02430 | .00670  | .00190  | -.00180 | .09190  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.05410 | -.01790 | .00180  | .00240  | -.00130 | .08790  | .00000 | .00000 | .00000 |
| 972.000 | .000     | -.03900 | -.00540 | .00300  | .00180  | -.00190 | .08520  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | -.02090 | -.00210 | .00550  | .00180  | -.00110 | .08790  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .01180  | .01540  | .00340  | .00210  | -.00080 | .08590  | .00000 | .00000 | .00000 |
|         | GRADIENT | .00883  | .00397  | -.00016 | -.00000 | .00009  | -.00052 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, MSFC 571, (1A6A)

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(R85125) ( 04 OCT 73 )

M571 (1A6A) TANK (T9) SEPARATING FROM ORBITER (013)

REFERENCE DATA

SREF = 2690.0000 99.00 FT. XMRP = 929.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

PARAMETRIC DATA

BETA = .000 MACH = 4.960  
 ELEVR = -40.000 AILERON = .000  
 RUDDER = .000 RUDDER = 40.000  
 DELTAA = 5.000 DELTAS = .000  
 DELTAY = .000 DELTAZ = 162.000

RUN NO. 2081/ 0 RV/L = 4.96 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN       | CLM     | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|-------|----------|----------|---------|---------|---------|---------|---------|--------|--------|--------|
| .000  | -5.000   | -.116970 | -.01830 | .01280  | -.00350 | -.00060 | .08610  | .00000 | .00000 | .00000 |
| .000  | -2.000   | -.12250  | -.00700 | .02200  | -.00550 | -.00150 | .08410  | .00000 | .00000 | .00000 |
| .000  | .000     | -.09490  | -.00450 | .02110  | -.00550 | -.00020 | .08210  | .00000 | .00000 | .00000 |
| .000  | 2.000    | -.07540  | -.00050 | .01370  | -.00390 | -.00100 | .08380  | .00000 | .00000 | .00000 |
| .000  | 5.000    | -.03570  | .01130  | .01400  | -.00390 | -.00150 | .08300  | .00000 | .00000 | .00000 |
|       | GRADIENT | .01311   | .00278  | -.00018 | .00002  | -.00006 | -.00028 | .00000 | .00000 | .00000 |

RUN NO. 2084/ 0 RV/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY     | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|---------|----------|---------|---------|--------|---------|---------|---------|--------|--------|--------|
| 972.000 | -5.000   | -.14460 | -.04460 | .01320 | -.00390 | -.00090 | .09430  | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.11380 | -.03300 | .01900 | -.00490 | -.00160 | .08860  | .00000 | .00000 | .00000 |
| 972.000 | .000     | -.09520 | -.02500 | .01890 | -.00280 | -.00080 | .08800  | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | -.07170 | -.01500 | .02100 | -.00570 | -.00210 | .08620  | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | -.05030 | -.00120 | .02250 | -.00540 | -.00070 | .08330  | .00000 | .00000 | .00000 |
|         | GRADIENT | .00958  | .00436  | .00087 | -.00016 | -.00000 | -.00103 | .00000 | .00000 | .00000 |



DATE 27 OCT 73

TABULATED SOURCE DATA, MSFC 571, (1A6A)

(985T26) ( 04 OCT 73 )

M571 (1A6A) TANK (T9) SEPARATING FROM ORBITER (013)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 920.0000 IN.  
LREF = 1328.3000 IN. YMRP = .0000 IN.  
BREF = 1228.3000 IN. ZMRP = .0000 IN.  
SCALE = .0040

PARAMETRIC DATA

BETA = .000 MACH = 4.960  
ELEVTR = -40.000 AILSON = .000  
RUDDER = .000 RUFLR = 40.000  
DELTA = .000 DELTAB = .000  
DELTAZ = 486.000  
DELTAY = .000

RUN NO. 2062/ 0 RN/L = 4.90 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|-------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000  | -5.000   | -.06140 | -.01490 | .01060  | .00090 | -.00010 | .08550  | .00000 | .00000 | .00000 |
| .000  | -2.000   | -.03380 | -.00890 | -.00750 | .00230 | .00000  | .08210  | .00000 | .00000 | .00000 |
| .000  | .000     | -.00370 | .00000  | .00040  | .00170 | -.00080 | .08190  | .00000 | .00000 | .00000 |
| .000  | 2.000    | .01980  | .00530  | .00190  | .00150 | -.00150 | .08140  | .00000 | .00000 | .00000 |
| .000  | 5.000    | .05980  | .01460  | .00350  | .00170 | -.00060 | .08360  | .00000 | .00000 | .00000 |
|       | GRADIENT | .01230  | .00303  | -.00029 | .00003 | -.00009 | -.00019 | .00000 | .00000 | .00000 |

RUN NO. 2061/ 0 RN/L = 4.90 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA   | ALPHA    | CN      | CLM     | CY     | CYN    | CBL     | CAF    | CABO   | CABT   | CABS   |
|---------|----------|---------|---------|--------|--------|---------|--------|--------|--------|--------|
| 972.000 | -5.000   | -.07040 | -.01440 | .00160 | .00230 | -.00010 | .08260 | .00000 | .00000 | .00000 |
| 972.000 | -2.000   | -.03750 | -.00510 | .00390 | .00210 | -.00010 | .08340 | .00000 | .00000 | .00000 |
| 972.000 | .000     | -.00750 | .00120  | .00450 | .00150 | .00000  | .08170 | .00000 | .00000 | .00000 |
| 972.000 | 2.000    | .01920  | .00550  | .00070 | .00250 | -.00090 | .08340 | .00000 | .00000 | .00000 |
| 972.000 | 5.000    | .06090  | .01390  | .00400 | .00290 | -.00040 | .08480 | .00000 | .00000 | .00000 |
|         | GRADIENT | .01327  | .00281  | .00010 | .00007 | -.00005 | .00019 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, MSFC 571, (1A6A)

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(R85727) (24 OCT 73)

M571 (1A6A) TANK (T9) SEPARATING FROM ORBITER (C13)

REFERENCE DATA

STEP = 2690.0000 SQ.FT. YMRP = 929.0000 IN.  
LREF = 1328.3000 IN. YMRP = .0000 IN.  
PREF = 1328.3000 IN. ZMRP = .0000 IN.  
SCALE = .0000

PARAMETRIC DATA

BETA = .000 VACH = 4.950  
ELEVTR = -40.000 AIRCON = .000  
RUDDER = .000 RUDDLE = 40.000  
DELTA = 5.000 DELTAB = .000  
DELTAY = .000 DELTAZ = 426.070

RUN NO. 2082/ 0 RN/L = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY     | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|--------|---------|---------|---------|--------|--------|--------|
| .000     | -5.000 | -.13060 | -.02350 | .01390 | -.00150 | -.00100 | .08570  | .00000 | .00000 | .00000 |
| .000     | -2.000 | -.08380 | -.01840 | .01730 | -.00440 | -.00090 | .08260  | .00000 | .00000 | .00000 |
| .000     | .000   | -.05990 | -.01680 | .00940 | -.00010 | .00000  | .08360  | .00000 | .00000 | .00000 |
| .000     | 2.000  | -.05600 | -.00680 | .01220 | -.00150 | -.00020 | .08160  | .00000 | .00000 | .00000 |
| .000     | 5.000  | .00150  | .00280  | .01790 | -.00410 | -.00020 | .08080  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01235  | .00267  | .00017 | -.00012 | .00009  | -.00046 | .00000 | .00000 | .00000 |

RUN NO. 2083/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA    | ALPHA  | CN      | CLM     | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|----------|--------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| 972.000  | -5.000 | -.13790 | -.02570 | .01920  | -.00430 | -.00100 | .08320  | .00000 | .00000 | .00000 |
| 972.000  | -2.000 | -.09170 | -.01750 | .01490  | -.00200 | -.00150 | .08570  | .00000 | .00000 | .00000 |
| 972.000  | .000   | -.06420 | -.01060 | .01700  | -.00420 | -.00170 | .08260  | .00000 | .00000 | .00000 |
| 972.000  | 2.000  | -.04500 | -.00430 | .01550  | -.00360 | -.00170 | .08170  | .00000 | .00000 | .00000 |
| 972.000  | 5.000  | -.00530 | .00450  | .01200  | -.00300 | -.00120 | .08330  | .00000 | .00000 | .00000 |
| GRADIENT |        | .01354  | .00306  | -.00060 | .00006  | -.00012 | -.00013 | .00000 | .00000 | .00000 |

DATE 27 OCT 73

TABULATED SOURCE DATA, MSFC 571, (1A6A)

(R85128) ( 04 OCT 73 )

M571 (1A6A) TANK (T9) ALONE

REFERENCE DATA

SRF = 2690.0000 SQ.FT. XMRP = 929.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BRP = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

BETA = .000 MACH = 4.960

PARAMETRIC DATA

RUN NO. 2095/ 0 RN/L = 5.03 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA X | ALPHA    | CN      | CLM     | CY     | CYN    | CBL     | CAF    | CABO   | CABT   | CABS   |
|---------|----------|---------|---------|--------|--------|---------|--------|--------|--------|--------|
| .000    | -9.040   | -1.1940 | -.02430 | .00530 | .00050 | .00000  | .08690 | .00000 | .00640 | .00000 |
| .000    | -7.120   | -.08870 | -.02070 | .00160 | .00020 | .00000  | .08320 | .00000 | .00640 | .00000 |
| .000    | -5.080   | -.06170 | -.01930 | .00170 | .00060 | -.00020 | .08450 | .00000 | .00530 | .00000 |
| .000    | -3.080   | -.03840 | -.00890 | .00380 | .00080 | .00000  | .08280 | .00000 | .00310 | .00000 |
| .000    | -1.070   | -.01530 | -.00410 | .00190 | .00060 | -.00090 | .08180 | .00000 | .00230 | .00000 |
| .000    | .960     | .01170  | .00370  | .00210 | .00070 | .00000  | .08010 | .00000 | .00330 | .00000 |
| .000    | 2.980    | .03870  | .00880  | .00230 | .00110 | .00000  | .08240 | .00000 | .00370 | .00000 |
| .000    | 5.000    | .05810  | .01610  | .00430 | .00090 | -.00010 | .08410 | .00000 | .00550 | .00000 |
| .000    | 7.040    | .08900  | .02060  | .00640 | .00100 | -.00010 | .08580 | .00000 | .00640 | .00000 |
| .000    | 9.070    | .11220  | .02640  | .00650 | .00110 | .00030  | .08590 | .00000 | .00670 | .00000 |
| .000    | 10.890   | .14680  | .02840  | .00670 | .00100 | .00010  | .08720 | .00000 | .00670 | .00000 |
| .000    | GRADIENT | .01222  | .00311  | .00207 | .00203 | .00003  | .00016 | .00000 | .00006 | .00000 |

(R85129) ( 04 OCT 73 )

PARAMETRIC DATA

ALPHA = .000 MACH = 4.960

M571 (1A6A) TANK (T9) ALONE

REFERENCE DATA

SRF = 2690.0000 SQ.FT. XMRP = 929.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BRP = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

RUN NO. 2096/ 0 RN/L = 5.04 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA X | BETA     | CN      | CLM    | CY      | CYN     | CBL     | CAF    | CABO   | CABT   | CABS   |
|---------|----------|---------|--------|---------|---------|---------|--------|--------|--------|--------|
| .000    | -9.980   | .00800  | .00160 | .12280  | .02860  | .00020  | .08640 | .00000 | .00630 | .00000 |
| .000    | -8.050   | .00630  | .00140 | .09350  | .02350  | -.00110 | .08480 | .00000 | .00630 | .00000 |
| .000    | -5.990   | .00470  | .00230 | .06480  | .01940  | .00120  | .08290 | .00000 | .00530 | .00000 |
| .000    | -3.980   | .00700  | .00240 | .04110  | .01380  | -.00100 | .08120 | .00000 | .00310 | .00000 |
| .000    | -1.960   | .00940  | .00260 | .01780  | .00870  | -.00080 | .08210 | .00000 | .00280 | .00000 |
| .000    | .060     | .00390  | .00400 | -.00530 | .00230  | .00150  | .08000 | .00000 | .00210 | .00000 |
| .000    | 2.080    | .00610  | .00320 | -.02700 | -.00480 | -.00020 | .08330 | .00000 | .00210 | .00000 |
| .000    | 4.110    | .00820  | .00330 | -.05050 | -.01120 | -.00160 | .08440 | .00000 | .00310 | .00000 |
| .000    | 6.150    | .00660  | .00320 | -.07760 | -.01660 | -.00040 | .08650 | .00000 | .00310 | .00000 |
| .000    | 8.200    | .00500  | .00400 | -.10670 | -.02080 | -.00040 | .08630 | .00000 | .00310 | .00000 |
| .000    | 10.020   | .00740  | .00330 | -.13380 | -.02430 | -.00003 | .08625 | .00000 | .00310 | .00000 |
| .000    | GRADIENT | -.00304 | .00012 | -.01128 | -.00314 | -.00003 | .00016 | .00000 | .00006 | .00000 |

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TABULATED SOURCE DATA, MSFC 571, (IA6A)

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M571 (IA6A) MATED CONFIGURATION (01319)

(R85101) (24 OCT 73)

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 635.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 MACH = 4.560  
 ELEVTR = .000 AIRLON = .000  
 RUDDER = .000 RUDDLR = 40.000  
 DELTAA = .000 DELTAS = .000  
 DELTAY = .000 DELTAZ = .000

RUN NO. 3001/ 0 RV/L = 5.05 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY      | CYN     | CBL     | CAF     | CABO    | CABT    | CABS   |
|-------|----------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| .000  | -10.450  | -33520  | .15160  | -.02560 | .01080  | -.00120 | .25240  | -.00660 | .00150  | .00000 |
| .000  | -8.540   | -28930  | .13430  | -.02550 | .01160  | -.00190 | .24020  | -.00560 | .00160  | .00000 |
| .000  | -6.520   | -24370  | .11890  | -.02730 | .01180  | -.00190 | .22610  | -.00430 | .00230  | .00000 |
| .000  | -4.490   | -18320  | .09670  | -.02330 | .00930  | -.00140 | .21140  | -.00140 | .00260  | .00000 |
| .000  | -2.470   | -14080  | .08790  | -.02300 | .01130  | -.00160 | .19820  | -.00180 | .00240  | .00000 |
| .000  | -.450    | -.08770 | .05970  | -.01920 | .00920  | -.00260 | .18710  | .00030  | .00180  | .00000 |
| .000  | 1.560    | -.04970 | .04740  | -.02290 | .00990  | -.00230 | .17960  | -.00210 | .00160  | .00000 |
| .000  | 3.580    | .01590  | .02010  | -.01310 | .00660  | -.00280 | .1760   | -.00100 | .00110  | .00000 |
| .000  | 5.670    | .06170  | .00380  | -.01870 | .00900  | -.00230 | .16410  | -.00110 | .00100  | .00000 |
| .000  | 7.620    | .10380  | -.01100 | -.01850 | .00850  | -.00230 | .15880  | -.00100 | .00140  | .00000 |
| .000  | 9.560    | .16120  | -.03430 | -.01890 | .00880  | -.00210 | .15360  | -.00120 | .00110  | .00000 |
| .000  | GRADIENT | .02429  | -.00926 | .00112  | -.00034 | -.00017 | -.00497 | .00002  | -.00019 | .00000 |

M571 (IA6A) MATED CONFIGURATION (01319)

(R85102) (24 OCT 73)

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 635.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 MACH = 4.560  
 ELEVTR = 10.000 AIRLON = .000  
 RUDDER = .000 RUDDLR = 40.000  
 DELTAA = .000 DELTAS = .000  
 DELTAY = .000 DELTAZ = .000

RUN NO. 3004/ 0 RV/L = 4.97 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY      | CYN     | CBL     | CAF     | CABO    | CABT    | CABS   |
|-------|----------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| .000  | -10.450  | -31820  | .13770  | -.02180 | .00980  | -.00200 | .24120  | -.00160 | .00150  | .00000 |
| .000  | -8.530   | -26850  | .12090  | -.03330 | .01360  | -.00320 | .23040  | .00140  | .00140  | .00000 |
| .000  | -6.510   | -23380  | .10980  | -.02920 | .01290  | -.00140 | .21920  | .00100  | .00140  | .00000 |
| .000  | -4.490   | -18000  | .09760  | -.02710 | .01120  | -.00140 | .20630  | .00010  | .00140  | .00000 |
| .000  | -2.470   | -12640  | .06960  | -.02510 | .01120  | -.00210 | .19510  | .00050  | .00140  | .00000 |
| .000  | -.450    | -.07330 | .04750  | -.02680 | .01130  | -.00240 | .18340  | .00260  | .00110  | .00000 |
| .000  | 1.560    | -.01920 | .02740  | -.02090 | .00950  | -.00290 | .17520  | .00110  | .00110  | .00000 |
| .000  | 3.580    | .03420  | .00540  | -.02270 | .01010  | -.00340 | .16720  | .00130  | .00110  | .00000 |
| .000  | 5.670    | .08010  | -.01360 | -.02050 | .00970  | -.00190 | .16390  | .00200  | .00230  | .00000 |
| .000  | 7.620    | .11450  | -.02560 | -.02620 | .01180  | -.00210 | .15830  | .00170  | .00210  | .00000 |
| .000  | 9.540    | .17170  | -.05100 | -.02270 | .00980  | -.00080 | .15370  | .00270  | .00260  | .00000 |
| .000  | GRADIENT | .02655  | -.01054 | .00064  | -.00019 | -.00024 | -.00466 | .00015  | -.00009 | .00000 |

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TABULATED SOURCE DATA, MSFC 571, (1A6A)

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M571 (1A6A) MATED CONFIGURATION (01319)

(R05103) ( 24 OCT 73 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XREF = 635.0000 IN.  
 LREF = 1328.3000 IN. YREF = .0000 IN.  
 BREF = 1328.3000 IN. ZREF = .0000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 MACH = 4.960  
 ELEVR = -20.000 AIRLON = .000  
 RUDDER = .000 RUFLR = 40.000  
 DELTAA = .000 DELTAB = .000  
 DELTAY = .000 DELTAZ = .000

RUN NO. 3005/ 0 RN/L = 4.96 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT   | CABS   |
|-------|----------|---------|---------|---------|--------|---------|---------|--------|--------|--------|
| .000  | -10.450  | -.36810 | .16580  | -.02370 | .01170 | -.00120 | .24530  | .00510 | .00490 | .00000 |
| .000  | -8.530   | -.32230 | .16580  | -.02740 | .01250 | -.00140 | .23220  | .00550 | .00450 | .00000 |
| .000  | -6.510   | -.27250 | .14710  | -.03110 | .01380 | -.00120 | .21880  | .00570 | .00520 | .00000 |
| .000  | -4.490   | -.20750 | .12170  | -.02120 | .00920 | -.00040 | .20540  | .00600 | .00590 | .00000 |
| .000  | -2.480   | -.16940 | .10080  | -.02700 | .01210 | -.00190 | .19020  | .00600 | .00710 | .00000 |
| .000  | -.450    | -.09680 | .07350  | -.02880 | .01180 | -.00310 | .18100  | .00640 | .00670 | .00000 |
| .000  | 1.540    | -.05440 | .05580  | -.02100 | .01010 | -.00260 | .16830  | .00620 | .00700 | .00000 |
| .000  | 3.580    | -.00080 | .03660  | -.02460 | .01140 | -.00210 | .15850  | .00630 | .00660 | .00000 |
| .000  | 5.600    | .04890  | .01520  | -.01870 | .00910 | -.00230 | .15170  | .00620 | .00570 | .00000 |
| .000  | 7.620    | .08350  | .00500  | -.02230 | .01140 | -.00160 | .14760  | .00620 | .00550 | .00000 |
| .000  | 9.560    | .14070  | -.02010 | -.02220 | .01030 | -.00210 | .14450  | .00620 | .00480 | .00000 |
| .000  | GRADIENT | .02621  | -.01068 | -.00004 | .00012 | -.00020 | -.00574 | .00004 | .00005 | .00000 |

M571 (1A6A) MATED CONFIGURATION (01319)

(R05104) ( 24 OCT 73 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XREF = 635.0000 IN.  
 LREF = 1328.3000 IN. YREF = .0000 IN.  
 BREF = 1328.3000 IN. ZREF = .0000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 MACH = 4.960  
 ELEVR = -40.000 AIRLON = .000  
 RUDDER = .000 RUFLR = 40.000  
 DELTAA = .000 DELTAB = .000  
 DELTAY = .000 DELTAZ = .000

RUN NO. 3008/ 0 RN/L = 4.99 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|-------|----------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| .000  | -10.450  | -.42340 | .22910  | -.03730 | .01650  | -.00240 | .26770  | .00190 | .00640 | .00000 |
| .000  | -8.530   | -.37450 | .21270  | -.03520 | .01610  | -.00240 | .25590  | .00240 | .00660 | .00000 |
| .000  | -6.500   | -.30180 | .18540  | -.02720 | .01350  | -.00190 | .24400  | .00380 | .00670 | .00000 |
| .000  | -4.490   | -.24890 | .15710  | -.03100 | .01390  | -.00190 | .22510  | .00410 | .00670 | .00000 |
| .000  | -2.490   | -.19560 | .13140  | -.03330 | .01450  | -.00440 | .20550  | .00440 | .00630 | .00000 |
| .000  | -.450    | -.13430 | .10460  | -.03070 | .01440  | -.00230 | .19340  | .00510 | .00610 | .00000 |
| .000  | 1.560    | -.08440 | .08310  | -.02670 | .01330  | -.00230 | .18070  | .00490 | .00600 | .00000 |
| .000  | 3.580    | -.02720 | .05690  | -.02470 | .01150  | -.00280 | .17190  | .00490 | .00600 | .00000 |
| .000  | 5.590    | .01070  | .03980  | -.03420 | .01410  | -.00310 | .16090  | .0040  | .00600 | .00000 |
| .000  | 7.620    | .07600  | .01440  | -.02320 | .01270  | -.00260 | .15580  | .00400 | .00600 | .00000 |
| .000  | 9.560    | .12180  | -.00550 | -.03010 | .01280  | -.00360 | .14920  | .00400 | .00600 | .00000 |
| .000  | GRADIENT | .02747  | -.01232 | .00004  | -.00030 | .00002  | -.00650 | .00000 | .00000 | .00000 |

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## TABULATED SOURCE DATA, MSFC 571, (1A6A)

(R85105) ( 04 OCT 73 )

M571 (1A6A) MATED CONFIGURATION (01319)

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 635.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 MACH = 4.960  
 ELEVTR = .000 AIRCON = 10.000  
 RUDDER = .000 RUFLR = 40.000  
 DELTAA = .000 DELTAB = .000  
 DELTAY = .000 DELTAZ = .000

RUN NO. 3009/ 0 RN/L = 4.96 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN      | CLM     | CY      | CYN    | CBL     | CAF     | CABO   | CABT    | CABS   |
|-------|----------|---------|---------|---------|--------|---------|---------|--------|---------|--------|
| .000  | -10.450  | -33410  | .13260  | -.02920 | .01270 | .00120  | .23650  | .00440 | .00640  | .00000 |
| .000  | -8.530   | -.29190 | .13770  | -.02710 | .01240 | .00120  | .22490  | .00470 | .00660  | .00000 |
| .000  | -6.510   | -.24240 | .11630  | -.03250 | .01300 | .00370  | .21190  | .00480 | .00670  | .00000 |
| .000  | -4.490   | -.19630 | .10080  | -.02690 | .01120 | .00070  | .20020  | .00500 | .00670  | .00000 |
| .000  | -2.480   | -.14670 | .07940  | -.03450 | .01390 | -.00020 | .18610  | .00510 | .00640  | .00000 |
| .000  | -.450    | -.09670 | .06250  | -.03040 | .01330 | .00030  | .17770  | .00520 | .00500  | .00000 |
| .000  | 1.530    | -.04710 | .04110  | -.03420 | .01370 | -.00010 | .16590  | .00510 | .00530  | .00000 |
| .000  | 3.580    | .01810  | .01750  | -.02620 | .01160 | .00030  | .16220  | .00530 | .00470  | .00000 |
| .000  | 5.670    | .05630  | .00320  | -.02790 | .01260 | .00100  | .15620  | .00510 | .00390  | .00000 |
| .000  | 7.620    | .10540  | -.00150 | -.02590 | .01040 | .00130  | .15160  | .00510 | .00360  | .00000 |
| .000  | 9.550    | .15540  | -.03960 | -.03170 | .01020 | .00000  | .14550  | .00520 | .00290  | .00000 |
| .000  | GRADIENT | .02623  | -.01017 | .00009  | .00003 | -.00003 | -.00477 | .00003 | -.00025 | .00000 |

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 635.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

(R85106) ( 04 OCT 73 )

M571 (1A6A) MATED CONFIGURATION (01319)

## PARAMETRIC DATA

ALPHA = .000 MACH = 4.960  
 ELEVTR = .000 AIRCON = .000  
 RUDDER = .000 RUFLR = 40.000  
 DELTAA = .000 DELTAB = .000  
 DELTAY = .000 DELTAZ = .000

RUN NO. 3012/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | BETA     | CN      | CLM     | CY      | CYN     | CBL     | CAF     | CABO   | CABT   | CABS   |
|-------|----------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| .000  | -10.310  | -.03460 | .04990  | .33500  | -.13890 | .05930  | .19460  | .00500 | .00560 | .00000 |
| .000  | -8.390   | -.09700 | .05520  | .25930  | -.10670 | .04840  | .19150  | .00520 | .00510 | .00000 |
| .000  | -6.340   | -.09780 | .05810  | .18920  | -.07710 | .03630  | .18910  | .00520 | .00520 | .00000 |
| .000  | -4.300   | -.10250 | .06330  | .12110  | -.04910 | .02440  | .18260  | .00530 | .00520 | .00000 |
| .000  | -2.270   | -.09570 | .05960  | .06050  | -.02570 | .01250  | .17320  | .00540 | .00520 | .00000 |
| .000  | -.240    | -.09270 | .05820  | .00020  | .00040  | .00130  | .17910  | .00570 | .00500 | .00000 |
| .000  | 1.770    | -.09750 | .06160  | -.06590 | .02630  | -.00090 | .17870  | .00560 | .00560 | .00000 |
| .000  | 3.810    | -.09460 | .06020  | -.12830 | .03070  | -.02030 | .18170  | .00550 | .00530 | .00000 |
| .000  | 5.860    | -.08770 | .05460  | -.19440 | .07880  | -.03230 | .18740  | .00530 | .00530 | .00000 |
| .000  | 7.900    | -.08090 | .03090  | -.26070 | .10690  | -.04470 | .19310  | .00530 | .00560 | .00000 |
| .000  | 9.860    | -.08560 | .05240  | -.33460 | .13940  | -.05690 | .19920  | .00510 | .00590 | .00000 |
| .000  | GRADIENT | .00069  | -.00021 | -.00036 | .00003  | -.00003 | -.00044 | .00007 | .00007 | .00000 |



TABULATED SOURCE DATA, MSFC 571, (IA6A)

(R85157) ( 04 OCT 73 )

M571 (IA6A) MATED CONFIGURATION (06319)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XREF = 635.0000 IN.  
LREF = 1328.3000 IN. YREF = .0000 IN.  
BREF = 1328.3000 IN. ZREF = .0000 IN.  
SCALE = .0040

PARAMETRIC DATA

ALPHA = .000 MACH = 4.960  
ELEVTR = .000 AIRRON = 10.000  
RUDDER = .000 RUOPLR = 40.000  
DELTA A = .000 DELTA B = .000  
DELTA Z = .000 DELTA Z = .000

RUN NO. 3011/ 0 RN/L = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA X  | BETA    | CN      | CLM    | CY      | CYN     | CBL     | CAF     | CABO    | CABT    | CABS   |
|----------|---------|---------|--------|---------|---------|---------|---------|---------|---------|--------|
| .000     | -10.340 | -.07700 | .04150 | .33700  | -.13920 | .05310  | .27070  | .00490  | .00540  | .00000 |
| .000     | -8.370  | -.08190 | .04490 | .25950  | -.10760 | .05090  | .19420  | .00310  | .00550  | .00000 |
| .000     | -6.340  | -.09810 | .05350 | .18750  | -.07780 | .03850  | .18840  | .00330  | .00580  | .00000 |
| .000     | -4.300  | -.09490 | .05580 | .12510  | -.05110 | .02680  | .18710  | .00330  | .00570  | .00000 |
| .000     | -2.170  | -.08800 | .05580 | .06470  | -.02600 | .01520  | .18290  | .00340  | .00570  | .00000 |
| .000     | -.230   | -.09280 | .05910 | .00020  | -.00130 | .00180  | .18170  | .00350  | .00580  | .00000 |
| .000     | 1.790   | -.08600 | .05550 | -.05990 | .02320  | -.00670 | .18260  | .00310  | .00540  | .00000 |
| .000     | 3.800   | -.09440 | .06120 | -.12430 | .04970  | -.01890 | .18560  | .00330  | .00590  | .00000 |
| .000     | 5.860   | -.10310 | .06140 | -.20000 | .08100  | -.03030 | .18690  | .00340  | .00580  | .00000 |
| .000     | 7.890   | -.08450 | .05600 | -.25840 | .10710  | -.04270 | .19420  | .00350  | .00600  | .00000 |
| .000     | 9.850   | -.08170 | .05190 | -.33240 | .13760  | -.05490 | .20090  | .00350  | .00590  | .00000 |
| GRADIENT | .00015  | .00052  | .00077 | .00233  | -.00559 | -.00016 | -.00000 | -.00000 | -.00000 | .00000 |

(R85158) ( 04 OCT 73 )

M571 (IA6A) MATED CONFIGURATION (06319)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XREF = 635.0000 IN.  
LREF = 1328.3000 IN. YREF = .0000 IN.  
BREF = 1328.3000 IN. ZREF = .0000 IN.  
SCALE = .0040

PARAMETRIC DATA

BETA = .000 MACH = 4.960  
ELEVTR = .000 AIRRON = 10.000  
RUDDER = .000 RUOPLR = 40.000  
DELTA A = .000 DELTA B = .000  
DELTA Z = .000 DELTA Z = .000

RUN NO. 3002/ 0 RN/L = 5.00 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA X  | ALPHA  | CN     | CLM     | CY      | CYN     | CBL     | CAF     | CABO    | CABT    | CABS   |
|----------|--------|--------|---------|---------|---------|---------|---------|---------|---------|--------|
| .000     | 9.880  | .14530 | -.03340 | -.01650 | .00670  | -.00180 | .14690  | .00190  | .00430  | .00000 |
| .000     | 11.800 | .20270 | -.05680 | -.01620 | .00660  | -.00110 | .14450  | .00140  | .00790  | .00000 |
| .000     | 12.830 | .26020 | -.07730 | -.02760 | .01040  | -.00210 | .14200  | .00120  | .00900  | .00000 |
| .000     | 15.850 | .31420 | -.09750 | -.01590 | .00630  | -.00160 | .14020  | -.00120 | .00950  | .00000 |
| .000     | 17.870 | .37170 | -.11630 | -.01570 | .00550  | -.00180 | .13770  | -.00140 | .00950  | .00000 |
| .000     | 19.900 | .43250 | -.14130 | -.01170 | .00550  | -.00250 | .13290  | .00240  | .00900  | .00000 |
| .000     | 21.920 | .48790 | -.16930 | -.01130 | .00460  | -.00370 | .13010  | .00270  | .00900  | .00000 |
| .000     | 23.950 | .57540 | -.20490 | -.01480 | .00640  | -.00510 | .12470  | .00340  | .00900  | .00000 |
| .000     | 25.980 | .66200 | -.24590 | -.01670 | .00390  | -.00610 | .12450  | .00370  | .00900  | .00000 |
| .000     | 28.010 | .75730 | -.29200 | -.01670 | .00270  | -.00740 | .12610  | .0040   | .00900  | .00000 |
| .000     | 29.960 | .83410 | -.33650 | -.01130 | .00550  | -.00810 | .12430  | .0040   | .00900  | .00000 |
| GRADIENT | .00015 | .00052 | .00077  | .00233  | -.00559 | -.00016 | -.00000 | -.00000 | -.00000 | .00000 |

(R85109) (24 OCT 73)

M571 (IAG6) MATED CONFIGURATION (031319)

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 635.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 MACH = 4.960  
 ELEVTR = 10.000 AILRON = .000  
 RUDDER = .000 RUDFLR = 40.000  
 DELTAA = .000 DELTAB = .000  
 DELTAY = .000 DELTAZ = .000

RUN NO. 3003/ 0 RN/L = 5.01 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN     | CLM     | CY      | CYN     | CBL     | CAF     | CABO    | CABT    | CABS   |
|-------|----------|--------|---------|---------|---------|---------|---------|---------|---------|--------|
| .000  | 9.880    | .17170 | -.05370 | -.01830 | .00690  | -.00040 | .15040  | .00240  | .00390  | .00000 |
| .000  | 11.800   | .21760 | -.07280 | -.01820 | .00720  | -.00140 | .14940  | .00200  | .00370  | .00000 |
| .000  | 13.830   | .28660 | -.09960 | -.01810 | .00710  | -.00290 | .14820  | .00160  | .00270  | .00000 |
| .000  | 15.860   | .34840 | -.12070 | -.01390 | .00640  | -.00180 | .14470  | .00030  | .00190  | .00000 |
| .000  | 17.870   | .39410 | -.13790 | -.01360 | .00560  | -.00110 | .14370  | .00060  | .00050  | .00000 |
| .000  | 19.900   | .45910 | -.16250 | -.01360 | .00520  | -.00240 | .14210  | .00220  | -.00160 | .00000 |
| .000  | 21.920   | .52810 | -.19840 | -.01340 | .00500  | -.00210 | .13650  | .00740  | -.00140 | .00000 |
| .000  | 23.940   | .59640 | -.23440 | -.02280 | .00610  | -.00140 | .13650  | .00720  | -.00220 | .00000 |
| .000  | 25.980   | .70020 | -.27880 | -.01260 | .00410  | -.00220 | .14040  | .00650  | -.00380 | .00000 |
| .000  | 28.010   | .78410 | -.32070 | -.01640 | .00520  | -.00170 | .14140  | .00650  | -.00520 | .00000 |
| .000  | 29.960   | .89490 | -.37360 | -.01090 | .00410  | -.00220 | .14290  | .00200  | -.00910 | .00000 |
| .000  | GRADIENT | .03494 | -.01540 | .00022  | -.00015 | -.00001 | -.00053 | -.00006 | -.00155 | .00000 |

M571 (IAG6) MATED CONFIGURATION (031319)

(R85109) (24 OCT 73)

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 635.0000 IN.  
 LREF = 1328.3000 IN. YMRP = .0000 IN.  
 BREF = 1328.3000 IN. ZMRP = .0000 IN.  
 SCALE = .0040

## PARAMETRIC DATA

BETA = .000 MACH = 4.960  
 ELEVTR = -20.000 AILRON = .000  
 RUDDER = .000 RUDFLR = 40.000  
 DELTAA = .000 DELTAB = .000  
 DELTAY = .000 DELTAZ = .000

RUN NO. 3006/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA | ALPHA    | CN     | CLM     | CY      | CYN     | CBL     | CAF     | CABO   | CABT    | CABS   |
|-------|----------|--------|---------|---------|---------|---------|---------|--------|---------|--------|
| .000  | 9.880    | .13300 | -.01820 | -.02040 | .00780  | -.00180 | .13980  | .00570 | .00240  | .00000 |
| .000  | 11.810   | .18300 | -.03600 | -.01240 | .00620  | -.00150 | .13900  | .00600 | .00290  | .00000 |
| .000  | 13.830   | .24410 | -.06170 | -.02170 | .00360  | -.00000 | .13490  | .00590 | .00310  | .00000 |
| .000  | 15.850   | .30510 | -.08290 | -.01790 | .00530  | -.00130 | .13130  | .00520 | .00240  | .00000 |
| .000  | 17.880   | .35520 | -.09970 | -.01190 | .00440  | -.00150 | .12340  | .00610 | .00170  | .00000 |
| .000  | 19.900   | .40130 | -.11510 | -.02130 | .00320  | -.00180 | .12710  | .00670 | .00140  | .00000 |
| .000  | 20.150   | .44620 | -.13130 | -.03070 | .00240  | -.00580 | .11920  | .00420 | -.00170 | .00000 |
| .000  | 21.900   | .46600 | -.14320 | -.01930 | .00320  | -.00150 | .12070  | .00670 | .00110  | .00000 |
| .000  | 23.950   | .55440 | -.18190 | -.01490 | .00670  | -.00030 | .11820  | .00630 | .00110  | .00000 |
| .000  | 25.990   | .62270 | -.21330 | -.02260 | .00620  | -.00130 | .11590  | .00600 | .00110  | .00000 |
| .000  | 28.010   | .71450 | -.25760 | -.01630 | .00560  | -.00080 | .11690  | .00500 | .00110  | .00000 |
| .000  | 29.960   | .79540 | -.28540 | -.01810 | .00790  | -.00180 | .11610  | .00500 | .00110  | .00000 |
| .000  | GRADIENT | .03288 | -.01332 | -.00004 | -.00004 | -.00002 | -.00133 | .00000 | .00110  | .00000 |

MS71 (1A6A) MATED CONFIGURATION (001379)

MS71 (1A6A) MATED CONFIGURATION (001379)

MS71 (1A6A) MATED CONFIGURATION (001379)

REFERENCE DATA  
 SREF = 2690.0000 SQ.FT.  
 LREF = 1328.3000 IN.  
 BREF = 1328.3000 IN.  
 SCALE = .0040

REFERENCE DATA  
 SREF = 2690.0000 SQ.FT.  
 LREF = 1328.3000 IN.  
 BREF = 1328.3000 IN.  
 SCALE = .0040

REFERENCE DATA  
 SREF = 2690.0000 SQ.FT.  
 LREF = 1328.3000 IN.  
 BREF = 1328.3000 IN.  
 SCALE = .0040

RUN NO. 30077 0 RN/L = 4.94 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA X | ALPHA    | CN     | CLM     | CY      | CYN     | CEL     | CAF     | CASO    | CASL    | CRS    |
|---------|----------|--------|---------|---------|---------|---------|---------|---------|---------|--------|
| .000    | 9.680    | .11800 | -.00500 | -.00230 | .00970  | -.00150 | .14610  | .00590  | .00240  | .00000 |
| .000    | 11.610   | .17910 | -.03160 | -.01680 | .00720  | -.00320 | .14110  | .00500  | .00730  | .00000 |
| .000    | 13.630   | .22900 | -.04960 | -.01630 | .00750  | -.00330 | .13930  | .00520  | .00720  | .00000 |
| .000    | 15.650   | .28020 | -.06920 | -.01410 | .00670  | -.00300 | .13610  | .00520  | .00720  | .00000 |
| .000    | 17.680   | .32720 | -.09140 | -.01010 | .00420  | -.00220 | .13250  | .00510  | .00720  | .00000 |
| .000    | 19.690   | .39750 | -.10720 | -.02140 | .00580  | -.00300 | .12770  | .00610  | .00720  | .00000 |
| .000    | 21.680   | .45380 | -.13300 | -.01730 | .00580  | -.00250 | .12350  | .00500  | .00720  | .00000 |
| .000    | 23.650   | .53150 | -.16590 | -.01720 | .00750  | -.00350 | .12090  | .00500  | .00720  | .00000 |
| .000    | 25.990   | .62340 | -.19350 | -.01230 | .00450  | -.00130 | .11670  | .00500  | .00720  | .00000 |
| .000    | 28.010   | .70340 | -.23790 | -.01650 | .00570  | -.00180 | .10120  | .00500  | .00720  | .00000 |
| .000    | 29.970   | .79190 | -.27390 | -.01440 | .00730  | -.00330 | .12240  | .00500  | .00720  | .00000 |
| .000    | GRADIENT | .13264 | -.01284 | .00012  | -.00011 | -.00002 | -.00002 | -.00000 | -.00000 | .00000 |

MS71 (1A6A) MATED CONFIGURATION (001379)

MS71 (1A6A) MATED CONFIGURATION (001379)

MS71 (1A6A) MATED CONFIGURATION (001379)

REFERENCE DATA  
 SREF = 2690.0000 SQ.FT.  
 LREF = 1328.3000 IN.  
 BREF = 1328.3000 IN.  
 SCALE = .0040

REFERENCE DATA  
 SREF = 2690.0000 SQ.FT.  
 LREF = 1328.3000 IN.  
 BREF = 1328.3000 IN.  
 SCALE = .0040

REFERENCE DATA  
 SREF = 2690.0000 SQ.FT.  
 LREF = 1328.3000 IN.  
 BREF = 1328.3000 IN.  
 SCALE = .0040

RUN NO. 30107 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

| DELTA X | ALPHA    | CN     | CLM     | CY      | CYN     | CEL     | CAF     | CASO    | CASL    | CRS    |
|---------|----------|--------|---------|---------|---------|---------|---------|---------|---------|--------|
| .000    | 9.690    | .16000 | -.03330 | -.02180 | .00920  | -.00260 | .14330  | .00550  | .00720  | .00000 |
| .000    | 11.610   | .20570 | -.05730 | -.02230 | .00900  | -.00300 | .14010  | .00500  | .00720  | .00000 |
| .000    | 13.630   | .26220 | -.07580 | -.02820 | .00800  | -.00300 | .13630  | .00500  | .00720  | .00000 |
| .000    | 15.650   | .32830 | -.10160 | -.02100 | .00840  | -.00200 | .13270  | .00500  | .00720  | .00000 |
| .000    | 17.680   | .39540 | -.13010 | -.02100 | .00900  | -.00200 | .12910  | .00500  | .00720  | .00000 |
| .000    | 19.690   | .43330 | -.16020 | -.02650 | .00850  | -.00200 | .12550  | .00500  | .00720  | .00000 |
| .000    | 21.610   | .50010 | -.17960 | -.02440 | .00820  | -.00200 | .12190  | .00500  | .00720  | .00000 |
| .000    | 23.650   | .56430 | -.21310 | -.01210 | .00610  | -.00100 | .11830  | .00500  | .00720  | .00000 |
| .000    | 25.990   | .67600 | -.25170 | -.03350 | .00700  | -.00100 | .11470  | .00500  | .00720  | .00000 |
| .000    | 28.010   | .76290 | -.30310 | -.03310 | .00700  | -.00100 | .11110  | .00500  | .00720  | .00000 |
| .000    | 29.970   | .84500 | -.35960 | -.03310 | .00700  | -.00100 | .10750  | .00500  | .00720  | .00000 |
| .000    | GRADIENT | .13150 | -.01150 | .00000  | -.00000 | .00000  | -.00000 | -.00000 | -.00000 | .00000 |

MS71 (1A6A) MATED CONFIGURATION (001379)

MS71 (1A6A) MATED CONFIGURATION (001379)

MS71 (1A6A) MATED CONFIGURATION (001379)